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University

College

Bulletin



Part – time

Undergraduate

Programs

Northeastern

University

1986 – 1987

University College Bulletin

Northeastern University Part-time Programs 1986-1987

**Part-time day and evening
undergraduate programs in:**

- Business Administration
- Health Professions and Sciences
- Law Enforcement
- Liberal Arts

PAGE 92: REQUIREMENTS FOR NEW
GRAPHIC DESIGN & VISUAL COMM-
UNICATION B.S. DEGREE (MAJOR
CODE 360) ARE MISLABELED AS
A.S. DEGREE (MAJOR CODE 362).

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1986–1987 Academic Calendar

Fall Quarter 1986

Classes begin Monday, September 29, 1986

Fall Registration Dates

Belmont High School

Wednesday, September 3, and
Tuesday, September 9,
5:30–8 pm

Boston Main Campus

Tuesday–Friday,
September 2–5,
5–7:30 pm
Saturday, September 6,
9 am–12 noon
Monday–Wednesday,
September 8–10, and 15–17
5–7:30 pm

Downtown Boston Campus

(5 Liberty Square)
Tuesday–Tuesday,
September 2–9,
11 am–6:30 pm

Brockton High School

Wednesday, September 3, and
Monday, September 8,
5:30–8 pm

Burlington Suburban Campus

Thursday, September 4,
5:30–8 pm
Friday, September 5,
12–3 pm and 5:30–8 pm
Monday–Tuesday, September 8–9,
5:30–8 pm

Chelmsford High School

Thursday, September 4, and
Tuesday, September 9,
5:30–8 pm

Dedham Campus

Thursday, September 4, and
Tuesday, September 9,
5:30–8 pm

Framingham North High School

Tuesday, September 2, and
Monday, September 8,
5:30–8 pm

Lynnfield Middle School

Wednesday, September 3, and
Monday, September 8,
5:30–8 pm

Marlboro High School

Wednesday, September 3, and
Monday, September 8,
5:30–8 pm

Marshfield High School

Thursday, September 4, and
Tuesday, September 9,
5:30–8 pm

Milford High School

Thursday, September 4, and
Tuesday, September 9,
5:30–8 pm

Revere High School

Thursday, September 4, and
Tuesday, September 9,
5:30–8 pm

Westwood High School

Thursday, September 4, and
Tuesday, September 9,
5:30–8 pm

Weymouth North High School

Wednesday, September 3, and
Monday, September 8,
5:30–8 pm

Fall quarter classes begin
Monday, September 29

Columbus Day observed
Monday, October 13

Veterans Day observed
Tuesday, November 11

Thanksgiving recess
Thursday–Sunday, November 27–30

Final examination period for fall quarter
Monday–Sunday, December 15–21

Christmas vacation
Monday–Sunday, December 22–January 4

Winter Quarter 1987

Classes begin Monday, January 5, 1987

Winter Registration Dates

Belmont High School

Tuesday, December 9,
5:30–8 pm

Boston Main Campus

Monday–Thursday,
December 8–11,
5–7:30 pm

Downtown Boston Campus

(5 Liberty Square)
Monday–Thursday,
December 8–11,
11 am–6:30 pm

Brockton High School

Monday, December 8,
5:30–8 pm

Burlington Suburban Campus

Monday–Thursday,
December 8–11,
5:30–8 pm

Chelmsford High School

Tuesday, December 9,
5:30–8 pm

Dedham Campus

Monday–Tuesday,
December 8–9,
5:30–8 pm

Framingham North High School

Monday–Tuesday,
December 8–9,
5:30–8 pm

Lynnfield Middle School

Monday, December 9,
5:30–8 pm

Marlboro High School

Monday, December 8,
5:30–8 pm

Marshfield High School

Tuesday, December 9,
5:30–8 pm

Milford High School

Tuesday, December 9,
5:30–8 pm

Revere High School

Tuesday, December 9,
5:30–8 pm

Westwood High School

Tuesday, December 9,
5:30–8 pm

Weymouth North High School

Tuesday–Wednesday,
December 9–10,
5:30–8 pm

Winter quarter classes begin
Monday, January 5

Martin Luther King Jr.'s Birthday observed
Monday, January 19

Presidents' Day observed
Monday, February 16

Final examination period for winter quarter
Monday–Sunday, March 23–29

Spring recess (or make-up period for lost
snow days)

Monday–Sunday, March 30–April 5

Spring Quarter 1987

Classes begin Monday, April 6, 1987

Spring Registration Dates

Belmont High School

Tuesday, March 17,
5:30–8 pm

Boston Main Campus

Monday–Thursday,
March 16–19,
5–7:30 pm

Downtown Boston Campus

(5 Liberty Square)
Monday–Thursday,
March 16–19,
11 am–6:30 pm

Brockton High School

Wednesday, March 11,
5:30–8 pm

Burlington Suburban Campus

Monday–Thursday,
March 16–19,
5:30–8 pm

Chelmsford High School

Tuesday, March 17,
5:30–8 pm

Dedham Campus

Monday, March 16, and
Wednesday, March 18,
5:30–8 pm

Framingham North High School

Monday–Tuesday,
March 16–17,
5:30–8 pm

Lynnfield Middle School

Monday, March 16,
5:30–8 pm

Marlboro High School

Monday, March 16,
5:30–8 pm

Marshfield High School

Tuesday, March 17,
5:30–8 pm

Milford High School

Tuesday, March 17,
5:30–8 pm

Revere High School

Tuesday, March 17,
5:30–8 pm

Westwood High School

Tuesday, March 17,
5:30–8 pm

Weymouth North High School

Monday, March 16, and
Wednesday, March 18,
5:30–8 pm

Spring quarter classes begin
Monday, April 6

Patriots' Day observed
Monday, April 20

Memorial Day observed
Monday, May 25

Final examination period for spring quarter
Monday–Sunday, June 15–21

Commencement
Sunday, June 21

Summer Quarter 1987

Classes begin Monday, June 22, 1987

Registration for Entire Summer Quarter**Boston Main Campus**

Monday–Thursday,
June 8–11,
5–7:30 pm

Burlington Suburban Campus

Monday–Wednesday,
June 8–10,
5:30–8 pm

Registration for Second Five–Week Summer Term**Boston Main Campus**

Monday–Tuesday,
July 13–14,
5:30–8 pm

Burlington Suburban Campus

Monday, July 13,
5:30–8 pm

Summer quarter classes begin
Monday, June 22

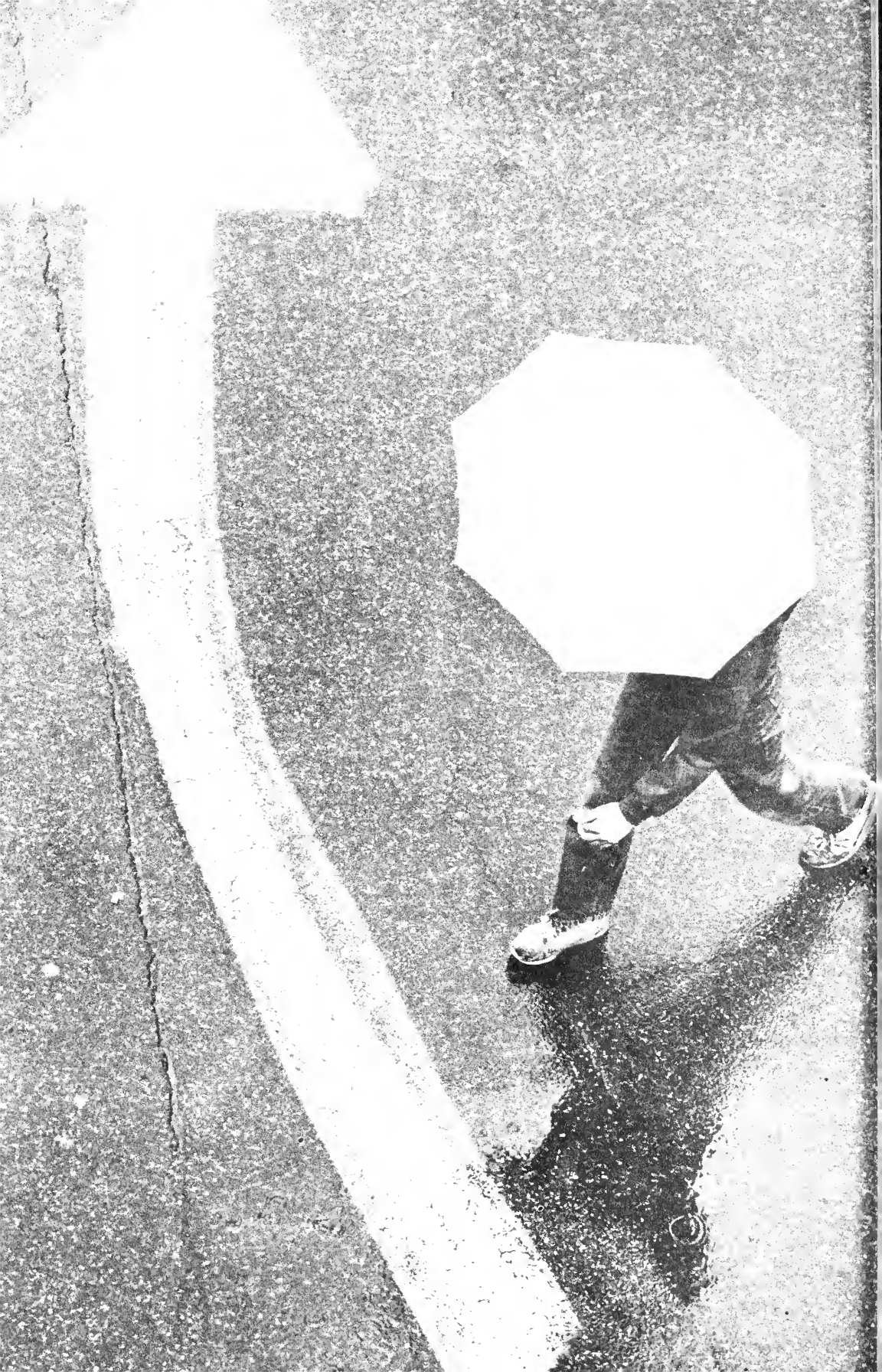
Second summer quarter session classes begin
Monday, July 27

Independence Day observed
Saturday, July 4

Labor Day observed
Monday, September 7

Final examination period for summer quarter
Held during last class session of each term

Calendar changes may be made. The University
community will be notified if such changes occur.



Introduction



How to Use this Book

The University College *Bulletin* is divided into five major sections: this Introduction and Programs of Study, Course Descriptions, Academic Policies and Services, and General Information. These first few pages offer a brief introduction to University College and include a list of its office hours and locations. The four remaining sections are described below.

Programs of Study

This section contains the curriculum for each program offered by University College. The section is subdivided into five major areas: Certificate Programs, Business Administration Degree Programs, Health Professions and Sciences Degree Programs, Law Enforcement Degree Programs, and Liberal Arts Degree Programs. These subsections contain general information about each program area and descriptions of each program offered.

Program descriptions contain the title of the program, the degree available, and all of the courses required to complete the program. Total quarter hours for each class and for the program as a whole are also listed. Students interested in pursuing a certificate or a degree in a given area should consult the program description to plan the sequence in which to take required, recommended, and elective courses.

Course Descriptions

The content of each course available at University College is listed in this section. Courses are listed alphabetically by subject area and are identified by course numbers composed of two parts: a department code (in letters) and four numbers. Course numbers are followed by the full name of the course and the quarter hours of credit offered. Course descriptions include the official version of the course's content and list

prerequisites necessary for enrollment, if any. A complete list of department codes can be found at the beginning of the course description section on page 118. A sample course description looks like this:

ACC 4110 Management Control for Nonprofit Organizations (3 q.h.)

Characteristics of management control in nonprofit organizations. Studies input-output measures, pricing, budgeting, and accounting control. For non-accounting majors. *Prereq.* ACC 4102.

Academic Policies and Services

This section contains information on various areas of interest to potential students, including who to call for help getting started. If you need to know the details on admission policies, transfer credit, the grading system, tuition and fees, scholarships and financial aid, student activities, and more, consult this section.

General Information

This section provides information on Northeastern University's nine colleges and graduate schools, its facilities, officers and governing boards, a list of University College faculty members, and maps to each of its 16 different campus locations.

University College

John W. Jordan, *Dean*
 Robert W. O'Connor,
Associate Dean for Academic Programs
 Ralph T. Vernile, Jr.,
Associate Dean for Administration

The Programs

University College is committed to the education of mature adult students who wish to live effectively in today's complex society. The College's programs are constantly evaluated and updated to satisfy the changing professional, cultural, and social needs and interests of adults.

Degree programs have been developed in over 30 major fields of study in the areas of business administration, health professions and sciences, law enforcement, and liberal arts. Courses are offered on a convenient, part-time basis throughout the week during the day and the evening. Students may take single courses, pursue a certificate program, or enroll in full degree programs leading to the associate's or bachelor's degree. Short-term seminars are also offered for credit. Classes are scheduled at a number of accessible locations.

The Faculty

Approximately 1,500 men and women constitute the part-time teaching staff of University College. Included are members of the full-time faculty of Northeastern University and other educational institutions in New England as well as outstanding New England business and professional leaders with training and experience in specialized areas.

The Student Body

Approximately 15,000 students, ranging in age from 18 years to beyond retirement, enroll in University College each year. The diversity of

the student body is a source of stimulation and enrichment for all—students, faculty, and administrators alike—who become a part of the University College community.

University College Offices

General Information

617-437-2400

Regular Office Hours

Office of the Registrar

120 Hayden Hall
 617-437-2300

Monday–Thursday

8:30 am–8 pm

Friday

8:30 am–4:30 pm

Belmont High School

221 Concord Avenue
 617-484-4418

Tuesday–Thursday

5:30–10 pm

Boston Main Campus

180 Ruggles Building
 360 Huntington Avenue
 617-437-2400

Monday–Friday

8:30 am–8:30 pm

Saturday

8:30 am–1 pm

Sunday

9:30 am–1:30 pm

Downtown Boston Campus

5 Liberty Square
 617-367-6373

Monday–Friday

7 am–10 pm

Saturday

8:30 am–1:30 pm

Brockton High School

470 Forest Avenue
 617-584-2444

Monday and Wednesday

5:30–10 pm

Burlington Suburban Campus

South Bedford Road
617-272-5500

Monday–Friday

8 am–10 pm

Saturday

8 am–1 pm

Sunday

9:30 am–1:30 pm

Burlington High School

123 Cambridge Street
617-273-1870

Monday–Thursday

5:30–10 pm

Chelmsford High School

200 Richardson Road
617-251-8792

Tuesday and Thursday

5:30–10 pm

Dedham Campus

370 Common Street
617-329-8000

Monday–Friday

8 am–10 pm

Saturday

8 am–1 pm

Framingham North High School

A Street
617-877-2333

Monday–Thursday

5:30–10 pm

Lynnfield Middle School

505 Main Street
617-334-6027

Monday and Wednesday

5:30–10 pm

Marlboro High School

Bolton Street
617-485-4122

Monday and Wednesday

5:30–10 pm

Marshfield High School

Forest Street
617-837-1835

Tuesday and Thursday

5:30–10 pm

Saturday

8:30 am–2 pm

Milford High School

31 West Fountain Street
617-473-2565

Tuesday and Thursday

5:30–10 pm

Revere High School

101 School Street
617-289-8113

Monday, Tuesday, and Thursday

5:30–10 pm

Westwood High School

200 Nahatan Street
617-329-3030

Monday–Thursday

5:30–10 pm

Weymouth North High School

1051 Commercial Street
617-335-9112

Monday–Thursday

5:30–10 pm

Summer Office Hours**Office of the Registrar**

120 Hayden Hall
Monday–Thursday
8:30 am–8 pm

Boston Main Campus

180 Ruggles Building
Monday–Thursday
8 am–8:30 pm

Downtown Boston Campus

5 Liberty Square
Monday–Thursday
7:30 am–10 pm

Burlington Suburban Campus

Monday–Thursday
8 am–10 pm

Dedham Campus

Monday–Thursday
8 am–10 pm
Friday
8:30 am–4:30 pm

Framingham North High School

Monday and Wednesday
5:30–10 pm

Weymouth North High School

Tuesday and Thursday
5:30–10 pm



Programs of Study



Program Introduction

University College conducts part-time educational programs at the undergraduate level during the day and the evening. The programs are designed to help meet the varying needs and interests of adult students who may enroll as students pursuing degree programs or as non-degree students taking single courses or special programs.

University College programs leading to the Bachelor of Science, Bachelor of Science in Business Administration, and Bachelor of Arts degrees provide opportunities for cultural and professional development equivalent in quality and scope to those offered in the conventional four-year college enrolling full-time students. The bachelor's degree requires approximately 174 quarter hours of credit.

Programs leading to the Associate in Science degree help provide students with a background in fundamental areas in business administration, health professions and sciences, law enforcement, and liberal arts. The associate's degree requires 96 quarter hours of credit and is equivalent to the conventional two-year, or junior, college in scope and quality. Certificate programs in a variety of disciplines are also offered.

Degree and certificate programs are offered in the following areas:

Business Administration

Accounting

Associate in Science 26

Bachelor of Science in Business

Administration 27

Certificate 12

Business Administration

Associate in Science 28

Compensation and Benefits Management

Certificate 13

Computer Programming and Systems Analysis
Certificate 13

Computer Systems Specialist Program

Certificate 14

Finance

Associate in Science 29

Certificate 15

Hotel and Restaurant Management

Associate in Science 30

Certificate 16

Human Resources Management

Associate in Science 31

Certificate 16

Industrial Management

Associate in Science 32

Industrial Technology

Bachelor of Science 33

Management

Bachelor of Science in Business

Administration 34

Management Information Systems

Associate in Science 36

Bachelor of Science in Business

Administration 37

Marketing

Associate in Science 39

Certificate 16

Materials Management

Certificate 17

Operations Management

Certificate 17

Purchasing

Associate in Science 40

Certificate 18

Real Estate

Associate in Science 41

Certificate 18

Transportation and Physical Distribution Management

Associate in Science 42

Certificate 20

Health Professions and Sciences

Chemical-Biological Technology

Associate in Science 46

Bachelor of Science 47

Health Management

Bachelor of Science 48

Option in Community Health Management 49

Option in Long-Term Care Administration 49

Health Record Administration

Bachelor of Science 50

Certificate 50

Health Science

Bachelor of Science in Health Science 53

Medical Laboratory Science

Associate in Science 56

Medical Technology, Bachelor of Science 56

Hematology, Bachelor of Science 59

Nursing

Bachelor of Science in Nursing (in affiliation with the College of Nursing) 61

Radiologic (X-Ray) Technology

Associate in Science 63

Therapeutic Recreation Services

Associate in Science 65

Certificate 65

Law Enforcement

Correctional Practices

Associate in Science 70

Bachelor of Science 72

Law Enforcement

Associate in Science 74

Bachelor of Science 76

Security

Associate in Science 78

Bachelor of Science 80

Liberal Arts

Advertising and Public Relations

Certificate 12

American Sign Language and Deaf Studies

Certificate 12

American Studies

Certificate 13

Arts and Sciences

Associate in Science 86

Economics

Bachelor of Arts 86

Bachelor of Science 87

English

Bachelor of Arts 88

Bachelor of Science 89

Fine Arts

Bachelor of Arts 90

Bachelor of Science 90

Gerontology

Certificate 15

Graphic Design and Visual Communication

Associate in Science 91

Bachelor of Science 92

Certificate 15

History

Bachelor of Arts 93

Bachelor of Science 94

Liberal Studies

Bachelor of Arts in Liberal Studies 96

Music

Bachelor of Arts 98

Bachelor of Science 99

Political Science

Bachelor of Arts 100

Bachelor of Science 102

Psychology

Bachelor of Arts 105

Bachelor of Science 106

Public Administration

Certificate 17

Sign Language Interpreting

Certificate 18

Sociology-Anthropology

Bachelor of Arts 107

Bachelor of Science 108

Software Technical Writing

Certificate 19

Song Writing

Certificate 19

Speech Communication

Certificate 20

Technical Communications

Bachelor of Science 110

Writing

Certificate 20

Course descriptions are listed in alphabetical order beginning on page 118.

Certificate Programs

Many persons who enroll in University College are seeking specific, job-related skills rather than the traditional course sequence of a degree program. To help meet such needs, University College offers a variety of certificate programs designed for:

- students who plan to complete an associate's degree but who first want to acquire the marketable skills offered in a certificate program
- individuals who seek an intensive course of study in a discipline but who do not wish to acquire a degree
- individuals who already hold a degree but who wish to acquire a specialized body of knowledge for a career change or professional development

Students may enroll in courses leading to a certificate at any time; it is not necessary to submit an application. After all of the courses in the certificate program are completed, students must submit a petition requesting a certificate to the Office of Academic and Student Affairs. Petitions are available at all campus locations or by calling 617-437-2400.

For assistance in determining course prerequisites or in deciding on the appropriate program, call 617-437-2400 and make an appointment to speak with an academic advisor or call the number listed with the individual certificate program.

Most certificate programs are designed so that transfer into a related degree program is possible. In addition, a limited amount of transfer credit for introductory courses taken at another school may be applied toward certificate program requirements, except for the American Sign Language and Deaf Studies and Sign Language Interpreting certificates. The number of transfer credits permitted varies by certificate.

An individual may be awarded only two certificates. Students who choose to complete a sec-

ond certificate in a subject that is related to the first often find that the two have certain courses in common. However, a second certificate will not be awarded if more than 50 percent of the course work is duplicated.

On occasion, students have good reasons for requesting permission to replace a required course with a substitute course. Permission to substitute a course must be granted by the appropriate program office. Students should submit a completed Petition for Course Substitution and Waivers to the appropriate office. Petitions are available at all campus locations.

All course credits used to fulfill the requirements for a certificate program must reflect academic work completed within five years prior to the date on which the certificate is awarded.

Accounting Certificate Program

				quarter hours
ACC 4101	ACC 4102	ACC 4103	Accounting Principles 1, 2, 3	9
ACC 4301	ACC 4302	ACC 4303	Intermediate Accounting 1, 2, 3	9
ACC 4310			Cost Accounting I	3
FI 4301			Principles of Finance	3
Total Quarter Hours (Possible transfer credit: 9 quarter hours)				24

For more information, call 617-437-2418.

Advertising and Public Relations Certificate Program

				quarter hours
JRN 4349			Advertising Basics	3
JRN 4112			Fundamentals of Newswriting	3
JRN 4335			Public Relations Basics	3
JRN 4336			Public Relations Practices	3
JRN 4337			Public Relations Problems	3
MKT 4301			Introduction to Marketing I	3
SPC 4251			Business and Professional Speaking	3
ART 4143			Advertising Design	3
ART 4366			Promotional and Technical Publications: Design and Production	3
Total Quarter Hours (Possible transfer credit: 9 quarter hours)				27

For more information, call 617-437-2416.

American Sign Language and Deaf Studies Certificate Program

				quarter hours
ASL 4101	ASL 4102		American Sign Language 1, 2*	8
ASL 4201	ASL 4202		Intermediate American Sign Language 1, 2	8
ASL 4301	ASL 4302		Advanced American Sign Language Proficiency 1, 2	8
ASL 4402			American Deaf Culture	3
ASL 4404			Linguistics of American Sign Language	3
ASL 4401			Deaf History	(3)
or			or	
ASL 4403			American Sign Language Literature	(3)
Total Quarter Hours (Possible transfer credit for ASL 4101 and ASL 4102: 8 quarter hours; all other credits must be completed in residence)				33

*An Advanced Placement examination is available for this course.

For more information, call 617-437-3064 (voice) or 617-437-3067 (TTY).

American Studies Certificate Program

		quarter hours
HST 4201	American History 1763-1848	3
HST 4202	American History 1848-1917	3
HST 4203	American History since 1917	3
POL 4104	Introduction to American Government	3
SOA 4430	Native North American Peoples	3
ENG 4234	Modern American Voices: The New Essayist	3
ENG 4611	The American Novel	3
ART 4223	American Architecture	3
MUS 4138	American Musical Theatre	3
Total Quarter Hours (Possible transfer credit: 9 quarter hours)		27

For more information, call 617-437-2416.

Compensation and Benefits Management Certificate Program

			quarter hours
HRM 4310	HRM 4311	Personnel Management 1, 2*	6
HRM 4321	Wage and Salary Administration		3
HRM 4322	Employee Benefits		3
HRM 4323	Job Evaluation		3
HRM 4330	HRM 4331	Employment Rights 1, 2*	6
Elective in Human Resources Management			3
Total Quarter Hours (Possible transfer credit: 9 quarter hours)			24

*This certificate may be taken by students who have also completed the Human Resources Management certificate. Asterisked courses would not have to be repeated.

For more information, call 617-437-2418.

Computer Programming and Systems Analysis Certificate Program

			quarter hours
MIS 4101	MIS 4102	Introduction to Data Processing and Information Systems 1, 2	6
MIS 4221	MIS 4222	MIS 4223	COBOL Programming 1, 2, 3
MIS 4230	End User Software		3
MIS 4241	MIS 4242	Programming in BASIC 1, 2	6
MIS 4301	MIS 4302	Structured Systems Analysis and Design 1, 2	6
Total Quarter Hours (Possible transfer credit: 12 quarter hours)			30

This certificate differs from the Computer Systems Specialist Program (described below) in that the courses for this certificate are regularly offered at all campuses and may be completed over a longer period of time than in the Specialist Program. For more information about both programs, call 617-437-2418.

Computer Systems Specialist Program

The Program

The Computer Systems Specialist Program is designed to offer students an opportunity to acquire training as computer systems specialists. Intended for students who are interested in entry-level programming positions in business and industry, the program is structured to help meet the career goals of individuals who presently have little or no academic or work-related background in computer programming. Students who successfully complete the program receive a Computer Systems Specialist certificate.

Admission

College Board Examinations are not required for admission. For purposes of evaluation for admission, however, a computer-programmer aptitude test is administered to applicants who successfully complete the initial screening process. Enrollment is limited. This program is offered only if a sufficient number of qualified candidates apply.

Time and Place

The program is scheduled twice during the academic year, in the fall and spring quarters. Classes are scheduled for 30 weekends: on

Friday, from 6 to 10 p.m., and all day Saturday, from 9 a.m. to 5:30 p.m. Sections offered alternate among the Boston, Burlington, and Dedham campuses.

Academic Credit and Certification

Upon satisfactory completion of the program, students will have accumulated 45 quarter hours of academic credit. These credits represent 26 percent of the credits necessary for a bachelor's degree. Students satisfactorily completing the program also receive a Computer Systems Specialist certificate.

Placement Assistance

Although job placement is not guaranteed, most students who successfully complete the program find suitable employment. Specific placement services include individual counseling; job-search seminars on career opportunities, self-assessment, résumé preparation, and interviewing skills; and résumé referrals to employers.

For More Information

For more information about the program and an application form, contact the Business Administration Programs Office, Northeastern University, University College, 360 Huntington Avenue, Boston, MA 02115, telephone 617-437-2418.

Course Content

Courses include the following:

				quarter hours
MIS 4101	MIS 4102		Introduction to Data Processing and Information Systems 1, 2	6
MGT 4101	MGT 4102		Introduction to Business and Management 1, 2	6
MIS 4221	MIS 4222	MIS 4223	COBOL Programming 1, 2, 3	9
MIS 4235			Advanced COBOL Programming	3
MIS 4230			End User Software	3
MIS 4241	MIS 4242		Programming in BASIC 1, 2	6
MIS 4273			PC DOS and Assembler	3
MIS 4301	MIS 4302		Structured Systems Analysis and Design 1, 2	6
MIS 4345			Data-Base Management Systems	3

Total Quarter Hours

45

Finance Certificate Program

				quarter hours
ACC 4101	ACC 4102	ACC 4103	Accounting Principles I, 2, 3	9
FI 4301			Principles of Finance	3
FI 4302			Financial Management	3
FI 4310			Investment Principles	3
FI 4320			Credit Principles	3
FI 4325			Budgeting and Planning	3
Total Quarter Hours (Possible transfer credit: 9 quarter hours)				24

For more information, call 617-437-2418.

Gerontology Certificate Program

				quarter hours
SOC 4225			Social Gerontology	3
PSY 4242			Development: Adulthood and Aging	3
SOC 4226			Work, Leisure, and Aging	3
PSY 4243			Aging and Mental Health	3
ECN 4312			Economic Concerns of Older Adults	3
PHL 4220			Meaning of Death	3
POL 4375			Consumer Advocacy I	3
SOC 4240			Sociology of Human Service Organizations	3
HSC 4610			Geriatric Nutrition	3
Total Quarter Hours (Possible transfer credit: 9 quarter hours)				27

For more information, call 617-437-2416.

Graphic Design and Visual Communication Certificate Program

				quarter hours
ART 4140			Graphic Communication and Production	3
JRN 4349			Advertising Basics	3
ART 4150			Graphic Design: Tools and Techniques	3
ART 4151			Typography	3
ART 4141	ART 4142		Graphic Design I, 2	6
ART 4143			Advertising Design	3
ART 4366			Promotional and Technical Publications: Design and Production	3
ART 4251			Advanced Graphic Design	3
Total Quarter Hours (Possible transfer credit: 9 quarter hours)				27

For more information, call 617-437-2416.

Hotel and Restaurant Management Certificate Program

		quarter hours
HTL 4301	Introduction to Hotel and Restaurant Management	3
HTL 4303 or HTL 4308	Front Office Management or Food and Beverage Cost Control	(3) (3)
HTL 4305	HTL 4306 Food Preparation 1, 2	6
ACC 4101	ACC 4102 Accounting Principles 1, 2	6
HTL 4309	Managerial Accounting for the Hospitality Industry	3

Total Quarter Hours (Possible transfer credit: 9 quarter hours) **21**

For more information, call 617-437-2418.

Human Resources Management Certificate Program

		quarter hours
HRM 4301	Organizational Behavior	3
HRM 4302	Introduction to Human Resources Management	3
HRM 4303	Applied Human Resources Management	3
HRM 4310	HRM 4311 Personnel Management 1, 2	6
HRM 4330	HRM 4331 Employment Rights 1, 2	6
HRM 4340 or HRM 4341	Public Sector Collective Bargaining in the United States or Private Sector Collective Bargaining in the United States	(3) (3)

Total Quarter Hours (Possible transfer credit: 9 quarter hours) **24**

For more information, call 617-437-2418.

Marketing Certificate Program

		quarter hours
MKT 4301	MKT 4302 Introduction to Marketing 1, 2	6
MKT 4310	MKT 4311 Advertising and Sales Promotion Management 1, 2	6
MKT 4315	MKT 4316 Sales Management 1, 2	6
MKT 4320	MKT 4321 Marketing Management 1, 2	6

Total Quarter Hours (Possible transfer credit: 9 quarter hours) **24**

For more information, call 617-437-2418.

Materials Management Certificate Program

			quarter hours
ACC 4101	ACC 4102	Accounting Principles I, 2	6
PUR 4351	PUR 4352	Purchasing I, 2	6
PUR 4358		Materials Requirement Planning	3
PUR 4370		Inventory Management	3
PUR 4365		Production Activity Control	3
TRN 4305		Traffic Management I	3
Total Quarter Hours (Possible transfer credit: 9 quarter hours)			24

For more information, call 617-437-2418.

Operations Management Certificate Program

			quarter hours
IM 4310		Manufacturing Processes	3
IM 4311		Methods Analysis, Motion and Time Study	3
IM 4312		Issues in Operations Management	3
IM 4313		Cases in Industrial Management	3
IM 4315		Industrial Decision Making I	3
IM 4317		Materials Management	3
IM 4320		Managing for Results	3
Total Quarter Hours (Possible transfer credit: 9 quarter hours)			21

For more information, call 617-437-2418.

Public Administration Certificate Program

			quarter hours
POL 4104		Introduction to American Government	3
POL 4300	POL 4301	Public Administration I, 2	6
POL 4303		Public Personnel Administration	3
POL 4304		Public Budgeting	3
POL 4305		Organizational Theory	3
POL 4306		Public Policy Analysis	3
MIS 4101	MIS 4102	Introduction to Data Processing and Information Systems I, 2	6
Total Quarter Hours (Possible transfer credit: 9 quarter hours)			27

For more information, call 617-437-2416.

Purchasing Certificate Program

			quarter hours
PUR 4351	PUR 4352	Purchasing 1, 2	6
PUR 4357		Business Negotiations	3
PUR 4358		Materials Requirement Planning	3
ACC 4101	ACC 4102	Accounting Principles 1, 2	6
MGT 4101	MGT 4102	Introduction to Business and Management 1, 2	6
IM 4314		Production Control and Inventory Management 1	3
Total Quarter Hours (Possible transfer credit: 9 quarter hours)			27

For more information, call 617-437-2418.

Real Estate Certificate Program

			quarter hours
RE 4301	RE 4302	Real Estate Fundamentals 1, 2	6
RE 4323	RE 4324	Real Estate Appraisal 1, 2	6
RE 4328	RE 4329	Real Estate Financial Analysis 1, 2	6
RE 4341	RE 4342	Real Estate Law 1, 2	6
Total Quarter Hours (Possible transfer credit: 9 quarter hours)			24

For more information, call 617-437-2418.

Sign Language Interpreting Certificate Program

			quarter hours
ASL 4600		Introduction to Interpreting	3
ASL 4601	ASL 4602	ASL 4603	American Sign Language Interpreting 1, 2, 3
ASL 4604	ASL 4605		Special Topics in Interpreting 1, 2
ASL 4606			Interpreter Roles and Ethics
ASL 4607			Interpreting Lab
ASL 4608			Practicum
Total Quarter Hours (Possible transfer credit: 8 quarter hours)			32

Advanced placement examinations are available for ASL 4202, ASL 4302, ASL 4402, and ASL 4404, which are prerequisites for courses for this certificate.

For more information, call 617-437-3064 (voice) or 617-437-3067 (TTY).

Software Technical Writing Certificate Program

			quarter hours
ART 4140		Graphic Communication and Production	3
MIS 4101	MIS 4102	Introduction to Data Processing and Information Systems I, 2	6
TCC 4101	TCC 4102	Technical Writing I, 2	6
TCC 4105		Editing for Science and Technology	3
TCC 4301	TCC 4302	Computer Software Technical Writing I, 2	6
<i>Choose one computer language from the following:</i>			
MIS 4220		Introduction to Programming in COBOL	(3)
or		or	
MIS 4240		Introduction to Programming in BASIC	(3)
or		or	
MIS 4250		FORTRAN Programming I	(3)
or		or	
MIS 4270		PASCAL Programming I	(3)
Total Quarter Hours (Possible transfer credit: 9 quarter hours)			27

For more information, call 617-437-2416.

Song Writing Certificate Program

			quarter hours
ENG 4357		Creative Writing: Poetry	3
MUS 4110		Music in Popular Culture	(3)
or		or	
MUS 4165		The Music Industry	(3)
MUS 4201	MUS 4202	MUS 4203	Music Theory I, 2, 3
MUS 4241			Piano Class I
or			or
MUS 4247			Guitar Class I
MUS 4254	MUS 4255	MUS 4256	Music Tutorial in Song Writing/Arranging I, 2, 3
Total Quarter Hours (Possible transfer credit: 9 quarter hours)			30

For more information, call 617-437-2416.

Speech Communication Certificate Program

		quarter hours
SPC 4101	Fundamentals of Human Communication	
SPC 4102	Group Discussion	
SPC 4150	Self-Concept and Communication	
SPC 4111	Voice and Articulation I	
SPC 4151	Listening	
SPC 4152	Interviewing	
SPC 4153	Techniques of Persuasion	
SPC 4154	Negotiation Skills	
SPC 4251	Business and Professional Speaking	
Total Quarter Hours (Possible transfer credit: 9 quarter hours)		27

For more information, call 617-437-2416.

Transportation and Physical Distribution Management Certificate Program

		quarter hours
TRN 4301	Elements of Transportation	
TRN 4302	Physical Distribution Management	
TRN 4305	Traffic Management I	
TRN 4316	Carrier Management	
TRN 4321	Transportation Regulation I	
MGT 4101	MGT 4102	Introduction to Business and Management I, 2
Total Quarter Hours (Possible transfer credit: 9 quarter hours)		21

For more information, call 617-437-2418.

Writing Certificate Program

		quarter hours
ENG 4349	ENG 4350	Expository and Persuasive Writing I, 2
ENG 4352		Expository Communications
JRN 4112		Fundamentals of Newswriting
JRN 4113		Newsgathering and Reporting
TCC 4101	TCC 4102	Technical Writing I, 2
ENG 4356		Creative Writing
ENG 4363		Writing for the Marketplace
Total Quarter Hours (Possible transfer credit: 9 quarter hours)		27

For more information, call 617-437-2416.

Business Administration Degree Programs

270 Ruggles Building
617-437-2418

Purpose

University College recognizes that adult students seek educational opportunities in business to satisfy many different professional needs. To help meet these needs, the College offers a wide selection of business and business-related courses as well as structured academic programs. Among the available options are certificate programs, associate's degree programs, and bachelor's degree programs. All certificate and degree programs have the common objective of offering students an opportunity to achieve professional competence in a formal set of business subjects while laying the foundation for further professional growth.

Programs

Certificates in Business

University College offers certificate programs for individuals seeking to build or advance a marketable specialization in business. Professional areas covered by the certificate programs include accounting, compensation and benefits management, computer programming and systems analysis, finance, hotel and restaurant management, human resources management, marketing, materials management, operations management, purchasing, real estate, and transportation and physical distribution management. Detailed infor-

mation on these programs, together with a recommended course sequence for completing them, appears in the section on certificate programs, pages 12-20.

Associate in Science Degrees

Programs leading to the Associate in Science degree are offered in accounting, business administration, finance, hotel and restaurant management, human resources management, industrial management, management information systems, marketing, purchasing, real estate, and transportation and physical distribution management.

These programs provide breadth of perspective through exposure to a well-balanced sequence of liberal arts courses. Specialized knowledge for future managerial growth may be acquired through the study of a core of professional business courses and a major or concentration in a business discipline. Students who have completed a certificate program may then enroll in an associate's degree program. Although credits earned in a certificate program may be applied toward this degree, completion of a certificate program is not required for the associate's degree. To be awarded the associate's degree, a student must successfully complete the 96 quarter hours of course credit detailed on the following pages.

Bachelor of Science in Business Administration Degrees

The Bachelor of Science in Business Administration (BSBA) degree is offered in accounting, management, and management information systems. Students who have decided to pursue a bachelor's degree in business should enroll in the courses detailed on page 24 prior to applying for admission to the Bachelor of Science in Business Administration degree program. These courses provide the broad educational foundation needed for the professional-level courses in business administration.

Students who wish to earn one of the Associate in Science degrees in business before entering a BSBA degree program should note that these programs include a validation requirement

for upper-level business courses taken while pursuing the associate's degree. (See details below.)

Admission to a BSBA degree program is restricted to students who have maintained a 2.0 cumulative grade-point average and completed a minimum of 80 quarter hours (60 semester hours) of credit, including certain basic courses in required subjects, either in University College or at another accredited institution. There is a special application form for admission to this program.

The BSBA degree program conforms to all standards established by the American Assembly of Collegiate Schools of Business (AACSB), which has been recognized by the Council for Post-Secondary Accreditation and by the United States Office of Education as the sole accrediting organization for university bachelor's and master's degree programs in business administration. Although there are more than 2,000 college and university programs in the United States, fewer than 10 percent of these institutions offer business programs that are fully accredited by AACSB. Northeastern University is unique in the New England region in that both its full-time and part-time bachelor's degree business programs are accredited.

Validation Requirement

"Validation" is the term used to describe a set of procedures that tests whether an upper-level course completed at the lower division of a bachelor's program should be accepted for transfer credit in the upper division of an AACSB-approved bachelor's degree program. There are three approved validation methods:

1 Sequential Course. Students who enroll in a Bachelor of Science in Business Administration degree program can validate a course taken at University College or elsewhere by successfully completing a course that is sequential to the course already completed. The sequential course must be taken in a reserved section. For example, successful completion of *Cost Accounting 2* in a reserved section can validate *Cost Accounting 1*, regardless of where the student completed *Cost Accounting 1*.

2 College-Level Examination Program (CLEP) and/or Proficiency Examination Program (PEP).

These standard examinations can be used to validate some previously taken upper-level business courses.

3 Departmental Examination. In cases where a sequential course does not exist or is not desired by a student, and no appropriate CLEP or PEP examination exists, validation can be accomplished through a departmental examination. Required upper-level courses are listed below under "Reserved and Open Sections."

Reserved and Open Sections

University College business courses required for a Bachelor of Science in Business Administration degree are classified as either *reserved* or *open*. Eligibility to register for reserved sections depends on the total number of course credits (including transfer credits) that a student has accumulated. A reserved section of a course is restricted to students who have accumulated 80 or more course credits. *Reserved sections of certain business courses are mandatory for students who have enrolled in one of the Bachelor of Science in Business Administration degree programs.* Reserved section courses are offered at the Boston, Burlington, Dedham, Framingham, and Weymouth campuses.

An open section of a course is one in which students may register without any restrictions.

The courses below are offered only in reserved sections. A schedule of the reserved sections offered for the 1986-87 fall, winter, and spring quarters is included in the *Fall 1986 Schedule Guide*.

ACC 4304		Intermediate Accounting 4
ACC 4311		Cost Accounting 2
ACC 4325		Auditing 1
ACC 4330		Internal Auditing 1
ACC 4340	ACC 4341	Federal Income Taxes 1, 2
MGT 4310		Project Management Process
MGT 4350	MGT 4351	Business Policy 1, 2
MGT 4355		Manager and Society
MGT 4356		International Business Management and Operations
MGT 4360	MGT 4361	Management Seminar 1, 2
MIS 4345		Data-Base Management Systems
MIS 4348		Information Resource Management
MIS 4385		Applied MIS Development Project

The following upper-level courses are offered in both open and reserved sections. Students already enrolled in the BSBA program who did not take these courses in their associate's degree programs must take them in reserved sections.

ACC 4301	ACC 4302	ACC 4303	Intermediate Accounting 1, 2, 3
ACC 4310			Cost Accounting 1
FI 4301			Principles of Finance
FI 4302			Financial Management
HRM 4301			Organizational Behavior
HRM 4302			Introduction to Human Resources Management
HRM 4303			Applied Human Resources Management
IM 4301			Operations Management (formerly Production Management)
MIS 4301	MIS 4302		Structured Systems Analysis and Design 1, 2
MIS 4307			Communications and Networking
MKT 4301			Introduction to Marketing 1
MKT 4320			Marketing Management 1

Planning a Program of Study

Students who plan to work toward the Bachelor of Science in Business Administration degree should submit transcripts of previously completed college-level course work and a Transfer Credit Petition to the Office of Academic and Student Affairs. (Transfer Credit Petitions may be requested by calling 617-437-2400. They are also available at all campus locations.) Students will receive by mail a transfer credit evaluation and a suggested plan of study to prepare for admission to this program. When this paperwork has been completed, students are encouraged to schedule an appointment with an academic advisor to discuss their programs.

Students who do not have any academic courses that may be transferred from another educational institution or program should plan to

meet with an academic advisor early in their studies at University College. These students are required to complete 80 quarter hours of credit, including English courses ENG 4110, 4111, and 4112; mathematics courses MTH 4110 and 4111; and a social science elective from the group of courses listed at the end of this section. This course work must be completed prior to admission to the BSBA degree program. Upon completion of these requirements, students should complete a Petition for Admission to the Bachelor of Science in Business Administration degree program and return it to the Office of Academic and Student Affairs to initiate the admissions process. This petition may be obtained at all campus locations or by calling 617-437-2400.

Students should choose their 80 quarter hours of credit from the list of recommended lower-level courses below.

Recommended Lower-Level Courses

ACC 4101	ACC 4102	ACC 4103	Accounting Principles 1, 2, 3
BL 4101	BL 4102		Law 1, 2
ECN 4115	ECN 4116	ECN 4117	Economic Principles and Problems 1, 2, 3
ECN 4250	ECN 4251		Statistics 1, 2
ENG 4110	ENG 4111		Critical Writing 1, 2
ENG 4112			Approaches to Literature
ENG 4380	ENG 4381		Business Writing and Reports 1, 2
MGT 4101	MGT 4102	MGT 4103	Introduction to Business and Management 1, 2, 3
MIS 4101	MIS 4102		Introduction to Data Processing and Information Systems 1, 2
MS 4325			Introduction to Modeling and Simulation
MTH 4110	MTH 4111		Mathematics 1, 2
PSY 4110			Fundamental Issues in Psychology
PSY 4111			Developmental Aspects in Psychology
PSY 4112			Personal Dynamics in Psychology
SOC 4100			Fundamental Issues in Sociology
SOC 4101			The Individual and Social Roles
or			or
SOC 4102			Critical Issues Facing Society
SPC 4101			Fundamentals of Human Communication

6 quarter hours of nonbusiness electives

3 quarter hours of a natural science elective

Program Consultants

ACC: Accounting

Consultant: Prof. Paul A. Janell (437-4645)

Associate Consultant (Accounting Principles):

Dean Walter E. Kearney, Jr. (437-2312)

BL: Business Law

Consultant: Thomas J. Ahern, Esq. (426-4211)

FI: Finance

Consultant: Prof. Jonathan Welch (437-4572)

Associate Consultant: Joseph Stanford (383-9299)

HTL: Hotel and Restaurant Management

Consultant: Donald A. Witkoski (362-2131, x361)

HRM: Human Resources Management

Consultant: Prof. Christine L. Hobart (437-4728)

Associate Consultant: Ronald E. Guittarr

(860-2774)

Associate Consultant: Daniel F. Hurley (785-0484)

IM: Industrial Management

Consultant: Prof. Robert A. Parsons (437-4749)

Consultant: Joel M. Rosenfeld (491-9200)

Associate Consultant: James D. Mukjian

(451-4004)

MGT: Management

Consultant: Prof. Daniel McCarthy (437-3255)

Associate Consultant: W. Arthur Gagne

(263-5819)

Associate Consultant: Robert L. Goldberg

(421-2602)

MIS: Management Information Systems

Consultant: Prof. Victor Godin (437-2418)

Associate Consultant (Systems): James F. Ferreira

(969-3100)

Associate Consultant (EDP): Thomas M. Kelly

(726-2275)

Associate Consultant (Programming):

Andrew E. Efsthathiou (727-6524)

Associate Consultant (Programming):

Bennett L. Kramer (588-9100, x208)

MKT: Marketing

Consultant: Prof. Dan T. Dunn, Jr. (437-4563)

Associate Consultant: William T. Hadley

(236-8532)

MS: Quality Control and Management Sciences

Consultant: Prof. Robert A. Parsons (437-4749)

Associate Consultant: Cephas Rogers (493-6972)

PUR: Purchasing

Consultant: Stephen F. Armstrong

(281-2000, x2519)

RE: Real Estate

Consultant: Leo M. Flynn (927-3406)

TRN: Transportation and Physical Distribution Management

Consultant: Prof. James F. Molloy (437-4812)

Accounting Associate in Science Degree (Major Code 470)**Core Courses**

Liberal Arts				quarter hours
ENG 4110	ENG 4111		Critical Writing 1, 2	6
ENG 4112			Approaches to Literature	3
MTH 4110	MTH 4111		Mathematics 1, 2	6
ECN 4250	ECN 4251		Statistics 1, 2	6
ECN 4115	ECN 4116	ECN 4117	Economic Principles and Problems 1, 2, 3	9
PSY 4110			Fundamental Issues in Psychology	3
PSY 4111			Developmental Aspects in Psychology	(3)
or			or	
PSY 4112			Personal Dynamics in Psychology	(3)

Business Administration

BL 4101	BL 4102	Law 1, 2	6
MS 4325		Introduction to Modeling and Simulation	3
FI 4301		Principles of Finance	3
HRM 4301		Organizational Behavior	3
HRM 4302		Introduction to Human Resources Management	3
MGT 4101	MGT 4102	Introduction to Business and Management 1, 2	6
MIS 4101	MIS 4102	Introduction to Data Processing and Information Systems 1, 2	6
MKT 4301		Introduction to Marketing I	3

Choose one computer programming course from:

MIS 4220		Introduction to Programming in COBOL	(3)
or		or	
MIS 4240		Introduction to Programming in BASIC	(3)
or		or	
MIS 4250		FORTRAN Programming I	(3)

Major Concentration Courses

ACC 4101	ACC 4102	ACC 4103	Accounting Principles 1, 2, 3	9
ACC 4301	ACC 4302	ACC 4303	Intermediate Accounting 1, 2, 3	9
ACC 4310			Cost Accounting I	3

Nonbusiness Electives

3

Total Quarter Hours**96**

Accounting

Bachelor of Science in Business Administration Degree (Major Code 460)

Core Courses

Liberal Arts			quarter hours	
ENG 4110	ENG 4111	Critical Writing 1, 2	6	
ENG 4112		Approaches to Literature	3	
MTH 4110	MTH 4111	Mathematics 1, 2	6	
ECN 4250	ECN 4251	Statistics 1, 2	6	
ECN 4115	ECN 4116	ECN 4117	Economic Principles and Problems 1, 2, 3	9
PSY 4110		Fundamental Issues in Psychology	3	
PSY 4111		Developmental Aspects in Psychology	(3)	
or		or		
PSY 4112		Personal Dynamics in Psychology	(3)	
ENG 4380	ENG 4381	Business Writing and Reports 1, 2	6	
SOC 4100		Fundamental Issues in Sociology	3	
SOC 4101		The Individual and Social Roles	(3)	
or		or		
SOC 4102		Critical Issues Facing Society	(3)	
SPC 4101		Fundamentals of Human Communication	3	

Business Administration

BL 4101	BL 4102	Law 1, 2	6
MS 4325		Introduction to Modeling and Simulation	3
FI 4301		Principles of Finance	3
HRM 4301		Organizational Behavior	3
HRM 4302		Introduction to Human Resources Management	3
MGT 4101	MGT 4102	Introduction to Business and Management 1, 2	6
MIS 4101	MIS 4102	Introduction to Data Processing and Information Systems 1, 2	6
MKT 4301		Introduction to Marketing I	3
FI 4302		Financial Management	3
IM 4301		Operations Management	3
MGT 4350	MGT 4351	Business Policy 1, 2	6
MGT 4356		International Business Management and Operations	3

Choose one computer programming course from:

MIS 4220	Introduction to Programming in COBOL	(3)
or	or	
MIS 4240	Introduction to Programming in BASIC	(3)
or	or	
MIS 4250	FORTTRAN Programming I	(3)

Continued

Major Concentration Courses

ACC 4101	ACC 4102	ACC 4103	Accounting Principles 1, 2, 3	9
ACC 4301	ACC 4302	ACC 4303	Intermediate Accounting 1, 2, 3, 4	12
ACC 4310	ACC 4311		Cost Accounting 1, 2	6
ACC 4325			Auditing I	(3)
or			or	
ACC 4330			Internal Auditing I	(3)
ACC 4340	ACC 4341		Federal Income Taxes 1, 2	6

Electives

Natural Science Elective (BIO, CHM, or ESC)	3
Nonbusiness Electives	6
Open Electives	27

Total Quarter Hours	174
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Business Administration Associate in Science Degree (Major Code 401)**Core Courses****Liberal Arts**

				quarter hours
ENG 4110	ENG 4111		Critical Writing 1, 2	6
ENG 4112			Approaches to Literature	3
MTH 4110	MTH 4111		Mathematics 1, 2	6
ECN 4250	ECN 4251		Statistics 1, 2	6
ECN 4115	ECN 4116	ECN 4117	Economic Principles and Problems 1, 2, 3	9
PSY 4110			Fundamental Issues in Psychology	3
PSY 4111			Developmental Aspects in Psychology	(3)
or			or	
PSY 4112			Personal Dynamics in Psychology	(3)

Business Administration

MGT 4101	MGT 4102	MGT 4103	Introduction to Business and Management 1, 2, 3	9
ACC 4101	ACC 4102	ACC 4103	Accounting Principles 1, 2, 3	9
MIS 4101	MIS 4102		Introduction to Data Processing and Information Systems 1, 2	6
MS 4325			Introduction to Modeling and Simulation	3
HRM 4301			Organizational Behavior	3
HRM 4302			Introduction to Human Resources Management	3
HRM 4303			Applied Human Resources Management	3
FI 4301			Principles of Finance	3
MKT 4301			Introduction to Marketing I	3

Electives

Nonbusiness Electives	6
Open Electives	12

Total Quarter Hours	96
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Finance Associate in Science Degree (Major Code 476)**Core Courses**

Liberal Arts			quarter hours	
ENG 4110	ENG 4111	Critical Writing 1, 2	6	
ENG 4112		Approaches to Literature	3	
MTH 4110	MTH 4111	Mathematics 1, 2	6	
ECN 4250	ECN 4251	Statistics 1, 2	6	
ECN 4115	ECN 4116	ECN 4117	Economic Principles and Problems 1, 2, 3	9
PSY 4110		Fundamental Issues in Psychology	3	
PSY 4111		Developmental Aspects in Psychology	(3)	
or		or		
PSY 4112		Personal Dynamics in Psychology	(3)	

Business Administration

MGT 4101	MGT 4102		Introduction to Business and Management 1, 2	6
ACC 4101	ACC 4102	ACC 4103	Accounting Principles 1, 2, 3	9
BL 4101	BL 4102		Law 1, 2	6
MS 4325			Introduction to Modeling and Simulation	3
MIS 4101	MIS 4102		Introduction to Data Processing and Information Systems 1, 2	6
HRM 4301			Organizational Behavior	3
HRM 4302			Introduction to Human Resources Management	3
MKT 4301			Introduction to Marketing I	3

Choose one computer programming course from:

MIS 4220		Introduction to Programming in COBOL	(3)
or		or	
MIS 4240		Introduction to Programming in BASIC	(3)
or		or	
MIS 4250		FORTRAN Programming I	(3)

Major Concentration Courses

FI 4301	Principles of Finance	3
FI 4302	Financial Management	3
FI 4310	Investment Principles	3
FI 4320	Credit Principles	3
FI 4325	Budgeting and Planning	3

Electives	3
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Total Quarter Hours	96
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Hotel and Restaurant Management Associate in Science Degree (Major Code 472)

Core Courses

Liberal Arts			quarter hours
ENG 4110	ENG 4111	Critical Writing 1, 2	6
ENG 4112		Approaches to Literature	3
MTH 4110	MTH 4111	Mathematics 1, 2	6
SPC 4101		Fundamentals of Human Communication	3
ECN 4115	ECN 4116	Economic Principles and Problems 1, 2	6
PSY 4110		Fundamental Issues in Psychology	3
PSY 4111		Developmental Aspects in Psychology	(3)
or		or	
PSY 4112		Personal Dynamics in Psychology	(3)

Business Administration

MGT 4101	MGT 4102	Introduction to Business and Management 1, 2	6
ACC 4101	ACC 4102	Accounting Principles 1, 2	6
MIS 4101	MIS 4102	Introduction to Data Processing and Information Systems 1, 2	6
HRM 4301		Organizational Behavior	3
HRM 4302		Introduction to Human Resources Management	3
HRM 4303		Applied Human Resources Management	3

Major Concentration Courses

HTL 4301		Introduction to Hotel and Restaurant Management	3
HTL 4303		Front Office Management	3
HTL 4304		Hotel and Restaurant Law	3
HTL 4307		Food Service Engineering and Sanitation	3
HTL 4308		Food and Beverage Cost Control	3
HTL 4309		Managerial Accounting for the Hospitality Industry	3
HTL 4313		Introduction to Tourism	3
HTL 4320		Food Preparation Intensive	6

Electives	12
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Total Quarter Hours	96
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Human Resources Management Associate in Science Degree (Major Code 477)**Core Courses****Liberal Arts**

quarter hours

ENG 4110	ENG 4111	Critical Writing 1, 2	6	
ENG 4112		Approaches to Literature	3	
MTH 4110	MTH 4111	Mathematics 1, 2	6	
ECN 4250	ECN 4251	Statistics 1, 2	6	
ECN 4115	ECN 4116	ECN 4117	Economic Principles and Problems 1, 2, 3	9
PSY 4110		Fundamental Issues in Psychology	3	
PSY 4111		Developmental Aspects in Psychology	(3)	
or		or		
PSY 4112		Personal Dynamics in Psychology	(3)	

Business Administration

MGT 4101	MGT 4102	Introduction to Business and Management 1, 2	6
ACC 4101	ACC 4102	Accounting Principles 1, 2	6
MIS 4101	MIS 4102	Introduction to Data Processing and Information Systems 1, 2	6
MS 4325		Introduction to Modeling and Simulation	3
BL 4101		Law I	3
FI 4301		Principles of Finance	3
MKT 4301		Introduction to Marketing I	3

Choose one computer programming course from:

MIS 4220	Introduction to Programming in COBOL	(3)
or	or	
MIS 4240	Introduction to Programming in BASIC	(3)
or	or	
MIS 4250	FORTRAN Programming I	(3)

Major Concentration Courses

HRM 4301		Organizational Behavior	3
HRM 4302		Introduction to Human Resources Management	3
HRM 4303		Applied Human Resources Management	3
HRM 4310	HRM 4311	Personnel Management 1, 2	6
HRM 4330	HRM 4331	Employment Rights 1, 2	6
HRM 4340		Public Sector Collective Bargaining	(3)
or		or	
HRM 4341		Private Sector Collective Bargaining	(3)

Nonbusiness Electives

3

Total Quarter Hours**96**

Industrial Management Associate in Science Degree (Major Code 478)**Core Courses****Liberal Arts**

quarter hours

ENG 4110	ENG 4111		Critical Writing 1, 2	6
ENG 4112			Approaches to Literature	3
MTH 4110	MTH 4111		Mathematics 1, 2	6
ECN 4250	ECN 4251		Statistics 1, 2	6
ECN 4115	ECN 4116	ECN 4117	Economic Principles and Problems 1, 2, 3	9
MTH 4130	MTH 4131		Calculus for Nonengineers 1, 2	6
PSY 4110			Fundamental Issues in Psychology	3
PSY 4111			Developmental Aspects in Psychology	(3)
or			or	
PSY 4112			Personal Dynamics in Psychology	(3)

Business Administration

MGT 4101	MGT 4102	Introduction to Business and Management 1, 2	6
ACC 4101	ACC 4102	Accounting Principles 1, 2,	6
MIS 4101	MIS 4102	Introduction to Data Processing and Information Systems 1, 2	6
MS 4325		Introduction to Modeling and Simulation	3
IM 4301		Operations Management	3
FI 4301		Principles of Finance	3
<i>Choose one computer programming course from:</i>			
MIS 4220		Introduction to Programming in COBOL	(3)
or		or	
MIS 4240		Introduction to Programming in BASIC	(3)
or		or	
MIS 4250		FORTRAN Programming I	(3)

Major Concentration Courses

IM 4310	Manufacturing Processes	3
IM 4311	Methods Analysis, Motion and Time Study	3
IM 4312	Issues in Operations Management	3
IM 4313	Cases in Industrial Management	3
IM 4315	Industrial Decision Making I	3
IM 4317	Materials Management	3
IM 4320	Managing for Results	3

Electives

3

Total Quarter Hours**96**

Industrial Technology Bachelor of Science Degree (Major Code 490)

quarter hours

Engineering or Technology Courses

(Must also include English courses ENG 4110, 4111, 4112, or the equivalent)

96

Core Courses**Liberal Arts**

ECN 4115	ECN 4116	ECN 4117	Economic Principles and Problems 1, 2, 3	9
PSY 4110			Fundamental Issues in Psychology	3
PSY 4111			Developmental Aspects in Psychology	(3)
or			or	
PSY 4112			Personal Dynamics in Psychology	(3)
SOC 4100			Fundamental Issues in Sociology	3
SOC 4101			The Individual and Social Roles	(3)
or			or	
SOC 4102			Critical Issues Facing Society	(3)

Business Administration

MGT 4101	MGT 4102		Introduction to Business and Management 1, 2	6
ACC 4101	ACC 4102		Accounting Principles 1, 2,	6
BL 4101	BL 4102		Law 1, 2	6
HRM 4301			Organizational Behavior	3
HRM 4302			Introduction to Human Resources Management	3
HRM 4303			Applied Human Resources Management	3
MIS 4101			Introduction to Data Processing and Information Systems I	3
MKT 4301			Introduction to Marketing I	3
MGT 4310			Project Management Process: Planning and Implementation	3

Choose three of the following:

IM 4312			Issues in Operations Management	(3)
IM 4313			Cases in Industrial Management	(3)
IM 4320			Managing for Results	(3)
MS 4336			Industrial Experimentation	(3)
MS 4337			Principles of Quality Assurance	(3)

Nonbusiness Electives

12

Total Quarter Hours**174**

**Management
Bachelor of Science in Business Administration Degree (Major Code 463)**

Core Courses

Liberal Arts

quarter hours

ENG 4110	ENG 4111		Critical Writing 1, 2	6
ENG 4112			Approaches to Literature	3
MTH 4110	MTH 4111		Mathematics 1, 2	6
ECN 4250	ECN 4251		Statistics 1, 2	6
ECN 4115	ECN 4116	ECN 4117	Economic Principles and Problems 1, 2, 3	9
PSY 4110			Fundamental Issues in Psychology	3
PSY 4111			Developmental Aspects in Psychology	(3)
or			or	
PSY 4112			Personal Dynamics in Psychology	(3)
ENG 4380	ENG 4381		Business Writing and Reports 1, 2	6
SOC 4100			Fundamental Issues in Sociology	3
SOC 4101			The Individual and Social Roles	(3)
or			or	
SOC 4102			Critical Issues Facing Society	(3)
SPC 4101			Fundamentals of Human Communication	3

Business Administration

ACC 4101	ACC 4102	ACC 4103	Accounting Principles 1, 2, 3	9
MIS 4101	MIS 4102		Introduction to Data Processing and Information Systems 1, 2	6
MS 4325			Introduction to Modeling and Simulation	3
HRM 4301			Organizational Behavior	3
HRM 4302			Introduction to Human Resources Management	3
HRM 4303			Applied Human Resources Management	3
FI 4301			Principles of Finance	3
MKT 4301			Introduction to Marketing I	3
BL 4101	BL 4102		Law 1, 2	6
FI 4302			Financial Management	3
IM 4301			Operations Management	3

Choose one computer programming course from:

MIS 4220		Introduction to Programming in COBOL	(3)
or		or	
MIS 4240		Introduction to Programming in BASIC	(3)
or		or	
MIS 4250		FORTTRAN Programming I	(3)

Continued

Major Concentration Courses

MGT 4101	MGT 4102	MGT 4103	Introduction to Business and Management I, 2, 3	9
MGT 4310			Project Management Process: Planning and Implementation	3
MGT 4350	MGT 4351		Business Policy I, 2	6
MGT 4355			Manager and Society	3
MGT 4356			International Business Management and Operations	3
MGT 4360	MGT 4361		Management Seminar I, 2	6
MKT 4320			Marketing Management I	3

Electives

Natural Science Elective (BIO, CHM, or ESC)	3
Nonbusiness Electives	6
Open Electives	33

Total Quarter Hours	174
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**Management Information Systems
Associate in Science Degree (Major Code 475)**
Core Courses

Liberal Arts			quarter hours
ENG 4110	ENG 4111	Critical Writing 1, 2	6
ENG 4112		Approaches to Literature	3
MTH 4110	MTH 4111	Mathematics 1, 2	6
ECN 4250	ECN 4251	Statistics 1, 2	6
ECN 4115	ECN 4116	ECN 4117	Economic Principles and Problems 1, 2, 3
SPC 4101		Fundamentals of Human Communication	3

Business Administration

ACC 4101	ACC 4102	Accounting Principles 1, 2	6
MGT 4101	MGT 4102	Introduction to Business and Management 1, 2	6
MS 4325		Introduction to Modeling and Simulation	3
FI 4301		Principles of Finance	3
HRM 4301		Organizational Behavior	3
HRM 4302		Introduction to Human Resources Management	3
HRM 4303		Applied Human Resources Management	3
IM 4301		Operations Management	3

Major Concentration Courses

MIS 4101	MIS 4102	Introduction to Data Processing and Information Systems 1, 2	6
MIS 4221	MIS 4222	COBOL Programming 1, 2	6
MIS 4230		End User Software	3
MIS 4301	MIS 4302	Structured Systems Analysis and Design 1, 2	6
MIS 4307		Communications and Networking	3

Electives

Total Quarter Hours	96
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Management Information Systems**Bachelor of Science in Business Administration Degree (Major Code 465)****Core Courses**

Liberal Arts			quarter hours	
ENG 4110	ENG 4111	Critical Writing 1, 2	6	
ENG 4112		Approaches to Literature	3	
MTH 4110	MTH 4111	Mathematics 1, 2	6	
ECN 4250	ECN 4251	Statistics 1, 2	6	
ECN 4115	ECN 4116	ECN 4117	Economic Principles and Problems 1, 2, 3	9
SPC 4101		Fundamentals of Human Communication	3	
PSY 4110		Fundamental Issues in Psychology	3	
PSY 4111		Developmental Aspects in Psychology	(3)	
or		or		
PSY 4112		Personal Dynamics in Psychology	(3)	
ENG 4380	ENG 4381	Business Writing and Reports 1, 2	6	
SOC 4100		Fundamental Issues in Sociology	3	
SOC 4101		The Individual and Social Roles	(3)	
or		or		
SOC 4102		Critical Issues Facing Society	(3)	

Business Administration

ACC 4101	ACC 4102	ACC 4103	Accounting Principles 1, 2, 3	9
MGT 4101	MGT 4102		Introduction to Business and Management 1, 2	6
MS 4325			Introduction to Modeling and Simulation	3
FI 4301			Principles of Finance	3
HRM 4301			Organizational Behavior	3
HRM 4302			Introduction to Human Resources Management	3
HRM 4303			Applied Human Resources Management	3
IM 4301			Operations Management	3
BL 4101	BL 4102		Law 1, 2	6
FI 4302			Financial Management	3
MKT 4301			Introduction to Marketing 1	3
MGT 4350	MGT 4351		Business Policy 1, 2	6
MGT 4356			International Business Management and Operations	3

Continued

Major Concentration Courses

MIS 4101	MIS 4102	Introduction to Data Processing and Information Systems 1, 2	6
MIS 4221	MIS 4222	COBOL Programming 1, 2	6
MIS 4230		End User Software	3
MIS 4301	MIS 4302	Structured Systems Analysis and Design 1, 2	6
MIS 4307		Communications and Networking	3
MIS 4345		Data-Base Management Systems	3
MIS 4348		Information Resource Management	3
MIS 4385		Applied MIS Development Project	3
MGT 4310		Project Management Process: Planning and Implementation	3

Electives

Natural Science Elective (BIO, CHM, or ESC)	3
Open Electives	30

Total Quarter Hours	174
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Marketing Associate in Science Degree (Major Code 479)**Core Courses****Liberal Arts**

quarter hours

ENG 4110	ENG 4111	Critical Writing 1, 2	6	
ENG 4112		Approaches to Literature	3	
MTH 4110	MTH 4111	Mathematics 1, 2	6	
ECN 4250	ECN 4251	Statistics 1, 2	6	
ECN 4115	ECN 4116	ECN 4117	Economic Principles and Problems 1, 2, 3	9
ENG 4380		Business Writing and Reports I	3	
SPC 4101		Fundamentals of Human Communication	3	

Business Administration

MGT 4101	MGT 4102	Introduction to Business and Management 1, 2	6
ACC 4101	ACC 4102	Accounting Principles 1, 2	6
HRM 4301		Organizational Behavior	3
HRM 4302		Introduction to Human Resources Management	3
MIS 4101	MIS 4102	Introduction to Data Processing and Information Systems 1, 2	6
MS 4325		Introduction to Modeling and Simulation	3
FI 4301		Principles of Finance	3

Major Concentration Courses

MKT 4301	MKT 4302	Introduction to Marketing 1, 2	6
MKT 4310	MKT 4311	Advertising and Sales Promotion Management 1, 2	6
MKT 4315	MKT 4316	Sales Management 1, 2	6
MKT 4320	MKT 4321	Marketing Management 1, 2	6

Nonbusiness Electives

6

Total Quarter Hours**96**

Purchasing Associate in Science Degree (Major Code 432)**Core Courses****Liberal Arts**

quarter hours

ENG 4110	ENG 4111		Critical Writing 1, 2	6
ENG 4112			Approaches to Literature	3
MTH 4110	MTH 4111		Mathematics 1, 2	6
ECN 4250	ECN 4251		Statistics 1, 2	6
ECN 4115	ECN 4116	ECN 4117	Economic Principles and Problems 1, 2, 3	9

Business Administration

MGT 4101	MGT 4102	Introduction to Business and Management 1, 2	6
ACC 4101	ACC 4102	Accounting Principles 1, 2	6
MIS 4101	MIS 4102	Introduction to Data Processing and Information Systems 1, 2	6
HRM 4301		Organizational Behavior	3
HRM 4302		Introduction to Human Resources Management	3
MS 4325		Introduction to Modeling and Simulation	3
IM 4301		Operations Management	3
MKT 4301		Introduction to Marketing I	3

Major Concentration Courses

PUR 4351	PUR 4352	Purchasing 1, 2	6
PUR 4357		Business Negotiation	3
PUR 4358		Materials Requirement Planning	3
PUR 4459		Subcontract Management	3
IM 4314		Production Control and Inventory Management	3
IM 4317		Materials Management	3

Nonbusiness Electives

12

Total Quarter Hours**96**

Real Estate Associate in Science Degree (Major Code 471)**Core Courses**

Liberal Arts			quarter hours
ENG 4110	ENG 4111	Critical Writing 1, 2	6
ENG 4112		Approaches to Literature	3
MTH 4110	MTH 4111	Mathematics 1, 2	6
ECN 4250	ECN 4251	Statistics 1, 2	6
ECN 4115	ECN 4116	ECN 4117	Economic Principles and Problems 1, 2, 3
			9

Business Administration

MGT 4101	MGT 4102	Introduction to Business and Management 1, 2	6
ACC 4101	ACC 4102	Accounting Principles 1, 2	6
FI 4301		Principles of Finance	3
HRM 4301		Organizational Behavior	3
HRM 4302		Introduction to Human Resources Management	3

Major Concentration Courses

RE 4301	RE 4302	Real Estate Fundamentals 1, 2	6
RE 4323	RE 4324	Real Estate Appraisal 1, 2	6
RE 4328	RE 4329	Real Estate Financial Analysis 1, 2	6
RE 4341	RE 4342	Real Estate Law 1, 2	6
		Department Offerings	3

Nonbusiness Electives	18
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Total Quarter Hours	96
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Transportation and Physical Distribution Management Associate in Science Degree (Major Code 483)

Core Courses

Liberal Arts

quarter hours

ENG 4110	ENG 4111	Critical Writing 1, 2	6	
ENG 4112		Approaches to Literature	3	
MTH 4110	MTH 4111	Mathematics 1, 2	6	
ECN 4250	ECN 4251	Statistics 1, 2	6	
ECN 4115	ECN 4116	ECN 4117	Economic Principles and Problems 1, 2, 3	9

Business Administration

MGT 4101	MGT 4102	Introduction to Business and Management 1, 2	6
ACC 4101	ACC 4102	Accounting Principles 1, 2	6
MS 4325		Introduction to Modeling and Simulation	3
FI 4301		Principles of Finance	3
HRM 4301		Organizational Behavior	3
HRM 4302		Introduction to Human Resources Management	3
IM 4301		Operations Management	3
MKT 4301		Introduction to Marketing I	3

Major Concentration Courses

TRN 4301	Elements of Transportation	3
TRN 4302	Physical Distribution Management	3
TRN 4305	Traffic Management I	3
TRN 4307	Contemporary Issues in Transportation and Distribution	3
TRN 4316	Carrier Management	3
TRN 4321	Transportation Regulation I	3

Nonbusiness Electives

18

Total Quarter Hours

96

Health Professions and Sciences Degree Programs

Paula M. Vosburgh, *Director*
Health Professions and Science Programs

Lana B. Melnik, *Assistant to the Director*
Health Professions and Science Programs

266 Ruggles Building
 617-437-2818

Purpose

University College offers part-time programs in allied health to help students prepare for advancement and service in hospitals and other health agencies.

Degree programs, both associate's and bachelor's, are designed to provide professional specialization and general educational development. All programs are designed to meet the accreditation standards of the Committee on Allied Health Education and Accreditation (CAHEA) of the American Medical Association (AMA) and of licensing or registration boards where such exist.

Clinical Assignments

Clinical assignments are generally available for students whose programs require directed applied study in a clinical setting. In most instances, lectures are presented at the University and clinical practice is conducted at hospitals or other health agencies in the Greater Boston area. Positions for applied clinical studies are often offered on a competitive basis, with the student's academic performance used as the basis for acceptance.

Students who accept clinical assignments in health facilities are expected to adhere to the requirements of the facilities, which are outside University control.

Preprofessional Medical Courses

The information provided below is for students who plan to apply for admission to schools of medicine, osteopathy, dentistry, podiatry, or optometry. Those who wish to pursue veterinary medicine may need to meet different entrance requirements and should consult the chair of the Health Professions Advisory Committee for additional advice.

Medical School Admission Requirements

The following courses must be completed before one may enroll in medical school and generally should be completed before one takes the school's particular admission test (MCAT, DAT, etc.).

Biology	one year (with labs)
General chemistry	one year (with labs)
Organic chemistry	one year (with labs)
Physics	one year (with labs)
College mathematics	including some calculus
College English	one year

Northeastern University's Health Professions Advisory Committee provides academic advice and help with professional school applications for students in any of the University's health programs. Although advice is available to anyone enrolled in a course, the Committee can prepare evaluation letters only for those who have taken enough course work at Northeastern to be able to have *at least two* Northeastern faculty members write letters to the Committee.

Sources of Advice:

Paula Vosburgh, *Director*
Health Professions and Science Programs
 University College
 266 Ruggles Building
 617-437-2818

Dr. C. H. Ellis, Jr.
 Chairperson, Health Professions
 Advisory Committee
 Biology Department
 Northeastern University
 445 Richards Hall
 617-437-4032

Professor T. J. McEneaney
 Office of Career Development and Placement
 Northeastern University
 124 Ruggles Building
 617-437-2430

Course Sequences to Meet Minimum Admission Requirements

The following list shows acceptable course sequences that may be taken by students preparing for health professional schools. Completing one sequence from each category should meet the *minimum* requirements of most medical or dental schools. If you have questions about whether other courses might be applicable, talk with Dr. Ellis or another member of the Health Professions Advisory Committee.

General biology	BIO 4103, 4104, 4105—lab <i>must</i> be taken. Other biology work, such as anatomy and physiology and microbiology, may be acceptable, depending on the professional school. General biology is highly recommended even if you have already taken the other courses.
General chemistry	CHM 4111, 4112, 4113—lab <i>must</i> be taken.
Organic chemistry	CHM 4261, 4262, 4263—lab <i>must</i> be taken.
General physics	PHY 4117, 4118, 4119 and labs PHY 4173, 4174.*
Mathematics	MTH 4108, 4120, 4121.
English	ENG 4110, 4111, 4112.

Two additional areas that are often required are behavioral science and biochemistry. Courses that meet these requirements are:

Behavioral science	PSY 4110, 4111, 4112, and/or other psychology courses.
Biochemistry	CHM 4371, 4372, 4373 or BIO 4246, 4247, 4248.

*These courses are scheduled through the School of Engineering Technology. Call 617-437-2500 for more information.

Program Directors and Coordinators

Area program directors and the Director of Health Professions and Science Programs have overall responsibility for the academic quality of the health programs in their areas of specialty. *The program coordinators for each area serve as the chief academic advisors for students in their programs.*

Health Professions

HMG: Health Management

Program Director: Prof. Carl W. Nelson (Health Care Area Coordinator, Graduate School of Business Administration) (437-4751)

Program Coordinator: Office of Health Professions and Science Programs (University College) (437-2818)

HRA: Health Record Administration

Program Director: Prof. Judith Weilerstein (College of Pharmacy and Allied Health Professions) (437-3663)

Program Coordinator: Annalee Collins (College of Pharmacy and Allied Health Professions) (437-2525)

HSC: Health Science

Program Coordinator: Dr. Theodore Blank (Massachusetts Department of Public Health) (727-8614)

MLS: Medical Laboratory Science

Program Director: Prof. Gerald L. Davis (College of Pharmacy and Allied Health Professions) (437-3664)

Clinical Coordinator: Barbara Martin (College of Pharmacy and Allied Health Professions) (437-4198)

Nursing

Academic Coordinator: Marcia DePace (University College) (437-2818)

RAD: Radiologic Technology

Assistant Director: Valerie A. Lamb (University College) (437-2818)

REC: Therapeutic Recreation

Program Director: Prof. Frank Robinson (Boston-Bouvé College of Human Development Professions) (437-3157)

Sciences

BIO: Biology

Consultant: Prof. Fred A. Rosenberg (College of Arts and Sciences) (437-4042)

Laboratory Coordinator: Jeffrey L. Wain (College of Arts and Sciences) (437-4046)

CHM: Chemistry

Consultant: Prof. Philip W. LeQuesne (College of Arts and Sciences) (437-2822)

Laboratory Coordinator: Bernard Lemire (College of Arts and Sciences) (437-2811)

Major Advisor, Chemical-Biological Technology: Dr. Carl F. Moxey (College of Arts and Sciences) (437-2260)

ESC: Earth Science

Consultant: Prof. David L. Wilmarth (College of Arts and Sciences) (437-3176)

MTH: Mathematics

Consultant: (University College) (437-2818)

Course Coordinator, Basic Mathematics:

Eugene Branca (University College) (437-2818)

Chemical-Biological Technology

Associate in Science Degree

The program in chemical-biological technology helps provide the chemistry and biology foundation required by medical and industrial laboratory assistants and technicians in clinically, chemically, or biologically oriented organizations and for persons who have paramedical responsibilities. Employment opportunities may be found in hospitals, health clinics, research foundations, chemical and drug industries, public health organizations, water and sanitation departments, and the emerging fields of oceanographic technology.

Prerequisite: Satisfactory completion of the Mathematics Placement Test or *Basic Mathematics 1* and 2 (MTH 4001 and MTH 4002).

Bachelor of Science Degree

The Bachelor of Science degree program in chemical-biological technology is an interdisciplinary program integrating theoretical and laboratory courses from the fields of chemistry and biology. The program is designed to help prepare students for responsibilities in laboratory careers and in teaching general science. Employment opportunities may be found in a variety of industrial, pharmaceutical, clinical, and hospital laboratories dealing with analytical, production, and research functions and as teachers of general science, chemistry, biology, and related courses at the secondary school level.

General Science Teacher Option: Students who plan to apply to the University's graduate Boston-Bouvé College of Human Development Professions must include courses in adolescent psychology and principles of teaching among their electives.

Chemical-Biological Technology Associate in Science Degree (Major Code 803)

Core Courses			quarter hours
ENG 4110	ENG 4111	Critical Writing 1, 2	6
ENG 4112		Approaches to Literature	3
HST 4101		The Civilization of the Ancient and Medieval Worlds	3
HST 4102		The Civilization of the Early Modern World	3
HST 4103		The Civilization of the Modern World	3
MTH 4110	MTH 4111	MTH 4112	Mathematics 1, 2, 3 (9)
or		or	
MTH 4107	MTH 4108		College Algebra and Introduction to Calculus (8)
MTH 4120	MTH 4121		Calculus I and Calculus A 8

Major Concentration Courses

BIO 4103	BIO 4104	BIO 4105	Biology 1, 2, 3	12
BIO 4175	BIO 4176	BIO 4177	Human Anatomy and Physiology 1, 2, 3	9
BIO 4190	BIO 4191	BIO 4192	Microbiology 1, 2, 3	9
CHM 4111	CHM 4112	CHM 4113	General Chemistry 1, 2, 3	9
CHM 4261	CHM 4262	CHM 4263	Organic Chemistry 1, 2, 3	(12)
or		or		
CHM 4221	CHM 4222	CHM 4223	Analytical Chemistry 1, 2, 3	(9)
PHY 4104	PHY 4105	PHY 4106	General Physics 1, 2, 3	6

Electives

Social Sciences	9
Chemistry or Biology as needed to complete total credits	

Chemical-Biological Technology Bachelor of Science Degree (Major Code 804)**Core Courses**

quarter hours

ENG 4110	ENG 4111		Critical Writing 1, 2	6
ENG 4112			Approaches to Literature	3
MTH 4110	MTH 4111	MTH 4112	Mathematics 1, 2, 3	(9)
or				
MTH 4107	MTH 4108		College Algebra and Introduction to Calculus	(8)
MTH 4120	MTH 4121		Calculus I and Calculus A	8
BIO 4103	BIO 4104	BIO 4105	Biology 1, 2, 3	12
BIO 4175	BIO 4176	BIO 4177	Human Anatomy and Physiology 1, 2, 3	9
CHM 4111	CHM 4112	CHM 4113	General Chemistry 1, 2, 3	9
PHY 4104	PHY 4105	PHY 4106	General Physics 1, 2, 3	6
ECN 4115	ECN 4116	ECN 4117	Economic Principles and Problems 1, 2, 3	9
HST 4101			The Civilization of the Ancient and Medieval Worlds	3
HST 4102			The Civilization of the Early Modern World	3
HST 4103			The Civilization of the Modern World	3
PSY 4110			Fundamental Issues in Psychology	3
PSY 4111			Developmental Aspects in Psychology	3
PSY 4112			Personal Dynamics in Psychology	3
SOC 4100			Fundamental Issues in Sociology	3
SOC 4101			The Individual and Social Roles	3
SOC 4102			Critical Issues Facing Society	3

Major Concentration Courses

BIO 4190	BIO 4191	BIO 4192	Microbiology 1, 2, 3	9
BIO 4224	BIO 4225	BIO 4226	Ecology 1, 2, 3	9
BIO 4235	BIO 4236	BIO 4237	Genetics 1, 2, and Lab	(8)
or				
BIO 4246	BIO 4247	BIO 4248	Cell Biology 1, 2, and Lab	(8)
BIO 4350	BIO 4351	BIO 4352	Histology-Organology 1, 2, 3	6
CHM 4221	CHM 4222	CHM 4223	Analytical Chemistry 1, 2, 3	9
CHM 4261	CHM 4262	CHM 4263	Organic Chemistry 1, 2, 3	12
CHM 4321	CHM 4322		Instrumental Analysis 1, 2	6
CHM 4323			Radiochemistry	3
CHM 4381	CHM 4382	CHM 4383	Physical Chemistry 1, 2, 3	(9)
or				
CHM 4371	CHM 4372	CHM 4373	Biochemistry 1, 2, 3	(9)
ESC 4215	ESC 4216	ESC 4217	Principles of Oceanology 1, 2, 3	9

Electives as needed to complete total credits**Total Quarter Hours****175-178**

Health Management

The Bachelor of Science degree program in health management is designed for those who wish to prepare, on a part-time basis, for entry

into or advancement in managerial positions in the health care field. This program includes a special concentration of professional courses to prepare for licensure examination in long-term care administration.

Health Management Bachelor of Science Degree (Major Code 860)

Core Courses				quarter hours
ENG 4110	ENG 4111		Critical Writing 1, 2	6
ENG 4112			Approaches to Literature	3
ECN 4115	ECN 4116	ECN 4117	Economic Principles and Problems 1, 2, 3	9
MTH 4110	MTH 4111		Mathematics 1, 2	6
PSY 4110			Fundamental Issues in Psychology	3
PSY 4111			Developmental Aspects in Psychology	3
PSY 4112			Personal Dynamics in Psychology	3
BIO 4103	BIO 4104	BIO 4105	Biology 1, 2, 3	12
BIO 4175	BIO 4176	BIO 4177	Anatomy and Physiology 1, 2, 3	9
SOC 4100			Fundamental Issues in Sociology	3
SOC 4101			The Individual and Social Roles	3
SOC 4102			Critical Issues Facing Society	3
ACC 4101	ACC 4102		Accounting Principles 1, 2	6
FI 4301			Principles of Finance	3
HMG 4200			Health Science Statistics	3
HMG 4430	HMG 4431		Communications for Health Care Personnel 1, 2	6
HRM 4310			Personnel Management I	3
MGT 4101	MGT 4102		Introduction to Business and Management 1, 2	6
MIS 4101			Introduction to Data Processing and Information Systems I	3
MIS 4355			Information Processing in Medicine	3
Major Concentration Courses				
HMG 4100	HMG 4101		Hospital Organization and Management 1, 2	6
HMG 4215			Hospital Law and Ethics	3
HMG 4301			Health Care Delivery	3
HMG 4310			Principles and Practices of Community Health I	3
HMG 4400	HMG 4401		Health Care Financial Management 1, 2	6
HRA 4302			Medical Terminology Survey	3
HSC 4301	HSC 4302		Foundations of Medical Science 1, 2	6
Electives				
Social Science or Humanities Electives				15

Continued

Option 1: Long-Term Care Administration

For licensure as a nursing home administrator, the Board of Registration of Nursing Home Administrators in Massachusetts requires an internship, a licensure examination, and a bachelor's degree. The required courses in this option help prepare students for the Massachusetts licensure examination. Students are cautioned, however, to contact the Board of Registration of Nursing Home Administrators for the specific eligibility requirements to sit for this examination.

HMG 4600	HMG 4601	HMG 4602	Long-Term Care Administration A, B, C*	18
SOC 4225			Social Gerontology	3
<i>Select 12 quarter hours from the following:</i>				
HMG 4300			Home Health Care	(3)
HMG 4425	HMG 4426		Applied Health Care Management 1, 2	(6)
HSC 4210			Basic Nutrition	(3)
HSC 4220			Basic Pharmacology	(3)
HSC 4315			Environmental Problems and Health	(3)
HSC 4610			Geriatric Nutrition	(3)
REC 4101	REC 4102	REC 4103	Principles and Practices of Therapeutic Recreation 1, 2, 3	(9)

Option 2: Community Health Management

HMG 4311			Principles and Practices of Community Health 2	3
HMG 4425	HMG 4426		Applied Health Care Management 1, 2	6
HSC 4310			Public Health 1	3
MLS 4341			Epidemiology 1	3
<i>Select 18 quarter hours from the following:</i>				
HMG 4300			Home Health Care	(3)
HMG 4550	HMG 4551		Contemporary and Controversial Health Care Issues 1, 2	(6)
HMG 4610			Principles and Practices of Community Mental Health	(3)
HSC 4210			Basic Nutrition	(3)
HSC 4220			Basic Pharmacology	(3)
HSC 4311			Public Health 2	(3)
HSC 4315			Environmental Problems and Health	(3)
HSC 4610			Geriatric Nutrition	(3)
MLS 4342			Epidemiology 2	(3)
SOC 4215			Medical Sociology	(3)

Total Quarter Hours**174**

*Students who, in years past, may have successfully completed any courses in Long-Term Care Administration (former sequence 86.340 through 86.345) are required to call the Program Director's office (617-437-2818) prior to registering for Long-Term Care Administration A, B, or C.

Health Record Administration

The health record administrator has varied responsibilities relating to health information systems, including the organization, operation, and management of health record services. Required skills include the ability to design health information and retrieval systems; to plan, organize, and direct health record services; to develop, analyze, and evaluate health records and indexes; to work with medical and administrative staffs in developing methods for evaluation of patient care; and to do research projects using health care information.

Successful completion of this program qualifies students for admission to the professional registration examinations conducted by the American Medical Record Association.

Potential students must be interviewed by the Program Director. Arrangements may be made through the Health Records Office, 205 Mugar Building, telephone 617-437-3663.

Professional Certification

Persons who wish to qualify for admission to the professional examination leading to registration as a medical record administrator and who already hold a bachelor's degree in another field of study from a college or university acceptable to Northeastern University may undertake the Health Record Administration Certificate Program. Completion of this program with a cumulative quality-point average of 2.5 leads to certification from University College that the student has completed a professional program in health record science. In addition to the required courses, students must complete one year of a natural science, such as biology, chemistry, or microbiology. Students must also demonstrate an understanding of the principles of descriptive statistics. This requirement may be satisfied by successful completion of an approved statistics course or completion of ECN 4250 *Statistics I*

with a grade of C or better. These requirements are in addition to the laboratory course in anatomy and physiology.

Potential students must be interviewed by the program advisor. Arrangements may be made through the Health Records Office, 205 Mugar Building, telephone 617-436-3663.

In designated professional courses (*), students must obtain a grade of C or better. Only one professional course may be repeated. Students who receive a grade of D in more than one professional course will be asked to withdraw from the program.

Students who apply for the clinical courses HRA 4324, HRA 4325, and HRA 4326 must have a quality-point average of 2.5 and the approval of their advisor.

Health Record Administration Bachelor of Science Degree (Major Code 861)**Core Courses**

quarter hours

ENG 4110	ENG 4111		Critical Writing 1, 2	6
ENG 4112			Approaches to Literature	3
MTH 4110	MTH 4111		Mathematics 1, 2	6
ECN 4115	ECN 4116	ECN 4117	Economic Principles and Problems 1, 2, 3	9
PSY 4110			Fundamental Issues in Psychology	3
PSY 4111			Developmental Aspects in Psychology	3
PSY 4112			Personal Dynamics in Psychology	3
BIO 4103	BIO 4104	BIO 4105	Biology 1, 2, 3	12
BIO 4175	BIO 4176	BIO 4177	Anatomy and Physiology 1, 2, 3*	9
ECN 4250	ECN 4251		Statistics 1, 2*	6

Choose one set of three courses:

HST 4101	The Civilization of the Ancient and Medieval Worlds	(3)
HST 4102	The Civilization of the Early Modern World	(3)
HST 4103	The Civilization of the Modern World	(3)

*or**or*

POL 4103	Introduction to Politics	(3)
POL 4104	Introduction to American Government	(3)
POL 4105	Introduction to Comparative Politics	(3)
SOC 4100	Fundamental Issues in Sociology	3
SOC 4101	The Individual and Social Roles	3
SOC 4102	Critical Issues Facing Society	3

Major Concentration Courses

HMG 4215			Hospital Law and Ethics*	3
HMG 4301			Health Care Delivery	3
HRA 4305	HRA 4306		Language of Medicine 1, 2†	4
HRA 4308			Hospital Management for Health Record Administrators*	3
HRA 4310	HRA 4311	HRA 4312	Health Record Science 1, 2, 3*	18
HRA 4313	HRA 4314		Health Record Science 4, 5*	12
HRA 4320	HRA 4321		Organization of the Health Record Department 1, 2*	6
HRA 4324	HRA 4325	HRA 4326	Applied Health Record Science 1, 2, 3*	9
HRA 4330			Health Record Computer Science*	3
HRA 4332			Topics in Health Records	3
HRM 4301			Organizational Behavior	3
HSC 4301	HSC 4302		Foundations of Medical Science 1, 2*	6
MIS 4101			Introduction to Data Processing and Information Systems I	3

Electives

Humanities (ART, ENG, LN, MUS, PHL)	6
Open Electives	18

Total Quarter Hours**178**

*Students must obtain a grade of C or better in this course.

†A challenge examination will be offered for this course. Call 617-437-2525 for details.

Health Record Administration Certificate Program (Major Code 862)

Core Courses				quarter hours
BIO 4175	BIO 4176	BIO 4177	Anatomy and Physiology 1, 2, 3	9
HMG 4215			Hospital Law and Ethics	3
HMG 4301			Health Care Delivery	3
HRA 4305	HRA 4306		Language of Medicine 1, 2*	4
HRA 4308			Hospital Management for Health Record Administrators	3
HRA 4310	HRA 4311	HRA 4312	Health Record Science 1, 2, 3	18
HRA 4313	HRA 4314		Health Record Science 4, 5	12
HRA 4320	HRA 4321		Organization of the Health Record Department 1, 2	6
HRA 4324	HRA 4325	HRA 4326	Applied Health Record Science 1, 2, 3	9
HRA 4330			Health Record Computer Science	3
HRA 4332			Topics in Health Records	3
HSC 4301	HSC 4302		Foundations of Medical Science 1, 2	6
MIS 4101			Introduction to Data Processing and Information Systems I	(3)
or			or	
COM 4101			Foundations of Computer Literacy	(4)

Total Quarter Hours**82-83**

*A challenge examination is available for this course. Call 617-437-2525 for details.

Health Science

The Bachelor of Science degree in health science is available to students holding registration, certification, or licensure (as defined by University regulations) in a specific health profession and trained in an approved program accredited by

the appropriate medical association (American Medical Association, National League for Nursing, American Dental Association, etc.)

Students interested in this program should consult with an academic advisor to determine their eligibility.

Health Science Bachelor of Science in Health Science Degree (Major Code 865)

Core Courses

quarter hours

ENG 4110	ENG 4111	Critical Writing I, 2	6
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ENG 4112	Approaches to Literature	3
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Humanities (ART, ASL, DRA, ENG, JRN, LN, MUS, PHL, SPC, TCC)	9
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Social Sciences (ECN, HST, POL, PSY, SOA, SOC)	9
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General

Select 15 quarter hours from any of the humanities or social science areas listed above.

Basic Sciences

BIO 4103	BIO 4104	Biology I, 2	8
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BIO 4175	BIO 4176	BIO 4177	Anatomy and Physiology I, 2, 3	9
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BIO 4190	Microbiology I	3
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CHM 4111	CHM 4112	CHM 4113	General Chemistry I, 2, 3	(9)
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or	CHM 4101	CHM 4102	CHM 4103	Modern Chemistry I, 2, 3	(9)
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MTH 4110	MTH 4111	Mathematics I, 2	(6)
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or	MTH 4107	MTH 4108	College Algebra and Introduction to Calculus	(8)
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Advanced Sciences

Select a minimum of 9 quarter hours from the following:

BIO 4235	BIO 4236	BIO 4237	Genetics I, 2, 3	(8)
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BIO 4246	BIO 4247	BIO 4248	Cell Biology I, 2, 3	(8)
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BIO 4258	BIO 4259	Advanced Human Physiology I, 2	(6)
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BIO 4320	Medical Microbiology	(4)
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BIO 4350	BIO 4351	BIO 4352	Histology-Organology I, 2, 3	(6)
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BIO 4461	Immunology	(4)
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CHM 4261	CHM 4262	CHM 4263	Organic Chemistry I, 2, 3	(12)
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HSC 4600	Advanced Nutrition	(3)
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HSC 4601	Advanced Pharmacology	(3)
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MLS 4321	Hematology	(3)
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MLS 4322	MLS 4323	Morphologic Hematology I, 2	(6)
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Major Concentration Courses**Basic**

HMG 4200		Health Science Statistics	3
HSC 4301	HSC 4302	Foundations of Medical Science 1, 2	6
<i>Select 18 quarter hours from the following:</i>			
HMG 4301		Health Care Delivery	(3)
HMG 4310	HMG 4311	Principles and Practices of Community Health 1, 2	(6)
HMG 4550	HMG 4551	Contemporary and Controversial Health Care Issues 1, 2	(6)
HMG 4610		Principles and Practices of Community Mental Health	(3)
HSC 4210		Basic Nutrition	(3)
HSC 4215		Hospital Law and Ethics	(3)
HSC 4220		Basic Pharmacology	(3)
HSC 4310	HSC 4311	Public Health 1, 2	(6)
HSC 4315		Environmental Problems and Health	(3)
MLS 4341		Epidemiology 1	(3)
REC 4460		Process of Aging	(3)

Students with a clinical laboratory background may choose 18 quarter hours from the following instead:

BIO 4235	BIO 4236	BIO 4237	Genetics 1, 2, 3*	(8)
BIO 4246	BIO 4247	BIO 4248	Cell Biology 1, 2, 3*	(8)
BIO 4350	BIO 4351	BIO 4352	Histology-Organology 1, 2, 3*	(6)
BIO 4461			Immunology*	(4)
CHM 4224			Analytical Chemistry	(4)
CHM 4381	CHM 4382	CHM 4383	Physical Chemistry 1, 2, 3	(9)

Advanced

Select 6 to 9 quarter hours from the following:

HMG 4210	HMG 4211	Medical Care and Current Social Problems 1, 2	(6)
HMG 4400	HMG 4401	Health Care Finance 1, 2	(6)
HMG 4425	HMG 4426	Applied Health Care Management 1, 2	(6)
HMG 4430	HMG 4431	Communications for Health Care Personnel 1, 2	(6)
HSC 4602		Methods and Materials of Public Health Education	(3)
HSC 4610		Geriatric Nutrition	(3)
HSC 4613		Oral Microbiology	(3)
HSC 4614	HSC 4615	Advanced Periodontology 1, 2	(6)
MLS 4342		Epidemiology 2	(3)

Continued

Students with a clinical laboratory background may choose 6 to 9 quarter hours from the following instead:

BIO 4191	BIO 4192	Microbiology 2, 3	(6)
BIO 4258	BIO 4259	Advanced Human Physiology 1, 2*	(6)
BIO 4320		Medical Microbiology*	(4)
CHM 4321	CHM 4322	Instrumental Analysis 1, 2	(6)
CHM 4323		Radiochemistry	(3)
MLS 1323		Hemostasis†	(2)
MLS 1324		Histochemistry†	(2)
MLS 1331		Clinical Immunology†	(3)
MLS 1333		Immunohematology†	(2)
MLS 4322	MLS 4323	Morphologic Hematology 1, 2*	(6)
MLS 4365		Quality Control	(3)

Electives and/or transfer credits to equal	40–43
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Total Quarter Hours	174
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†These courses may be used in only one category; requirements must be fulfilled in each category.

Tuition for this course is at the Basic College tuition rate.

Medical Laboratory Science— Medical Technology

Medical laboratory science (MLS) is concerned with laboratory examination of material necessary for proper monitoring of health and for the diagnosis and treatment of illness. Medical laboratory technicians and technologists work in a variety of specialized fields, such as microbiology, blood banking, hematology, or clinical chemistry, or as generalists in all these areas.

The associate's degree medical laboratory technician works under the direct supervision of a medical technologist and performs most of the common medical laboratory tests. The bachelor's degree medical technologist is considered qualified to perform, with little or no direct supervision, levels of laboratory tests from the simplest to the most complex. With additional education or experience, medical technologists may also function as educators, researchers, or supervisors. Some serve as sales and technical representatives for scientific supply and equipment companies; others serve in government positions.

Both degree programs are conducted in affiliation with hospitals in the Boston area. The bachelor's degree is accredited by the Committee of Allied Health Education and Accreditation of the American Medical Association. Upon successful completion of either program, the student is eligible to take a national certification examination given by the National Certification Agency for Medical Laboratory Personnel or the Board of Registry of the American Society of Clinical Pathology.

The basic courses in medical laboratory science, science, and education are offered evenings, but the advanced medical laboratory science courses and the clinical experience are offered full time only during the day.

Prerequisite: Satisfactory completion of the Mathematics Placement Test or *Introduction to Mathematics 1* and 2 (MTH 4110, MTH 4111).

Associate's Degree Professional Requirements

A clinical applied study program (or appropriate work experience) is a required component of this degree. Work experience is acceptable if it meets the requirements for certification of either

the National Certification Agency for Medical Laboratory Personnel or the Board of Registry of the American Society of Clinical Pathologists. Students without appropriate work experience may apply for clinical applied studies through the University College MLS Clinical Coordinator, 206 Mugar, telephone 617-437-3664. This should be done one year in advance of the anticipated entry into clinical courses.

Prerequisites for clinical applied studies are a minimum of a 2.0 quality-point average in the required courses and a C- or better in each medical laboratory science (MLS) course. These basic courses are available during the evening and, on an every-other-year basis, through the College of Pharmacy and Allied Health Professions. Students register for these courses in the College of Pharmacy and Allied Health Professions, 206 Mugar. Tuition is at the Basic College rate. These courses should be completed within three years of applying to the AD-MLT Clinical Applied Studies.

Bachelor's Degree Professional Requirements

Clinical applied study courses are available on a full-time basis only and are offered through the College of Pharmacy and Allied Health Professions. Students must apply for applied study courses one year in advance. A minimum of four quarters of full-time study is necessary for completion of the program requirements. During this time the student must meet all the requirements of the last four quarters of the undergraduate Basic College curriculum for the Bachelor of Science degree. Students register for clinical applied study in the College of Pharmacy and Allied Health Professions, 206 Mugar. Tuition is at the Basic College rate.

Prerequisites for the clinical applied study component include completion of each MLS course with a C- or better within five years of application to the applied study and completion of all other courses with a quality-point average of 2.5 or better.

Medical Laboratory Science—Medical Laboratory Technician Associate in Science Degree (Major Code 800)

Core Courses				quarter hours
ENG 4110	ENG 4111		Critical Writing I, 2	6
ENG 4112			Approaches to Literature	3
HMG 4210			Medical Care and Current Social Problems	3
HMG 4215			Hospital Law and Ethics	3
MTH 4107	MTH 4108		College Algebra and Introduction to Calculus	8
BIO 4103	BIO 4104	BIO 4105	Biology I, 2, 3	12
BIO 4175	BIO 4176	BIO 4177	Human Anatomy and Physiology I, 2, 3	9
CHM 4111	CHM 4112	CHM 4113	General Chemistry I, 2, 3	9
CHM 4224			Analytical Chemistry	4
Major Concentration Courses				
MLS 1311			Basic MLS Urinalysis*	2
MLS 1321	MLS 1322		Basic MLS Hematology I, 2*	4
MLS 1330			Basic MLS Immunohematology*	2
MLS 1331			Basic MLS Clinical Immunology*	3
MLS 1341			Basic MLS Clinical Microbiology*	4
MLS 1351			Basic MLS Clinical Chemistry*	4
MLS 4301			Medical Laboratory Science Orientation	2
Electives				
Computer Science				3
Humanities				6
Social Science				3
Open Electives				6
Total Quarter Hours				96

*Tuition for this course is at the Basic College rate.

Medical Technology—Medical Technologist Bachelor of Science Degree (Major Code 801)

	quarter hours
Credits from Medical Laboratory Science associate's degree program	96

Core Courses

BIO 4190			Microbiology I	3
BIO 4235	BIO 4236	BIO 4237	Genetics I, 2, and Lab	8
BIO 4246	BIO 4247	BIO 4248	Cell Biology I, 2, and Lab	8
CHM 4261	CHM 4262	CHM 4263	Organic Chemistry I, 2, 3	12
MLS 4351			Epidemiology I	3
PHY 4104	PHY 4105	PHY 4106	General Physics I, 2, 3	6
PHY 4174			Physics Laboratory 2	2

Major Concentration Courses

Please refer to the current Northeastern University *Basic Day College Course Description and Curriculum Guide* for course descriptions of the following clinical applied-study courses. Tuition for these courses is at the Basic College rate; to register, call 617-437-3664.

MLS 1523			Applied Hematology	4
MLS 1532			Applied Immunohematology	3
MLS 1544			Applied Clinical Microbiology	7
MLS 1552			Applied Clinical Chemistry	7
MLS 1621	MLS 1622		Advanced Hematology I, 2	5
MLS 1631			Advanced Immunohematology	2
MLS 1642			Medical Parasitology	2
MLS 1643			Medical Mycology	3
MLS 1645	MLS 1646	MLS 1647	Advanced Clinical Microbiology I, 2, 3	6
MLS 1651	MLS 1652	MLS 1653	Advanced Clinical Chemistry I, 2, 3	6
MLS 1661			MLS Education	2
MLS 1665			MLS Management	2
MLS 1680			MLS Special Topics	2
MLS 1681			MLS Senior Seminar	2
MLS 1890			Undergraduate Research (Optional)	(2)

Electives

Psychology and statistics are strongly recommended electives.

Computer Science	3
Humanities	3
Social Science	3
Open Electives	3

Total Quarter Hours

203–205

Medical Laboratory Science — Hematology

Hematology is a specialty within medical laboratory science. Hematology technologists may be employed in hospitals and clinical laboratories, where they perform specific laboratory tests that aid in the diagnosis, treatment, and follow-up of infections, anemias, leukemias, and bleeding disorders.

The requirements for categorical certification in hematology are indicated by the Board of Registry of the American Society of Clinical Pathologists and the National Certification Agency. Students should contact the American Society of Clinical Pathologists, Board of Registry, P.O. Box

96215, Chicago, IL 60693, and the National Accrediting Agency for Clinical Laboratory Science, 547 W. Jackson Boulevard, Suite 608, Chicago, IL 60606, for details concerning eligibility to write the hematology examination.

The hematology curriculum is designed primarily for those who already work in this field.

All medical laboratory science clinical courses are offered directly through the College of Pharmacy and Allied Health Professions. Students must register for the courses through this college, 206 Mugar, telephone 617-437-3664. Tuition is at the Basic College rate. A grade of C- or better is required in the professional courses.

Hematology Bachelor of Science Degree (Major Code 807)

Core Courses

				quarter hours
ENG 4110	ENG 4111		Critical Writing 1, 2	6
ENG 4112			Approaches to Literature	3
MTH 4107	MTH 4108		College Algebra and Introduction to Calculus	8
BIO 4103	BIO 4104	BIO 4105	Biology 1, 2, 3	12
BIO 4175	BIO 4176	BIO 4177	Human Anatomy and Physiology 1, 2, 3	9
BIO 4190			Microbiology I	3
BIO 4235	BIO 4236	BIO 4237	Genetics 1, 2, and Lab	8
BIO 4246	BIO 4247	BIO 4248	Cell Biology 1, 2, and Lab	8
CHM 4111	CHM 4112	CHM 4113	General Chemistry 1, 2, 3	9
CHM 4221	CHM 4222	CHM 4223	Analytical Chemistry 1, 2, 3	(9)
or			or	
CHM 4224			Analytical Chemistry (Summer Intensive)	(4)
CHM 4261	CHM 4262	CHM 4263	Organic Chemistry 1, 2, 3	12
HMG 4100	HMG 4101		Hospital Organization and Management 1, 2	6
HMG 4210	HMG 4211		Medical Care and Current Social Problems	6
HMG 4215			Hospital Law and Ethics	3
PHY 4104	PHY 4105	PHY 4106	General Physics 1, 2, 3	6
PHY 4174			Physics Laboratory 2	2

Continued

Major Concentration Courses

HSC 4320	HSC 4321	Health Science Education 1, 2	6
MLS 1311		Basic MLS Urinalysis*	2
MLS 1321		Basic MLS Hematology 1*	2
MLS 1322		Basic MLS Hematology 2*	2
MLS 1323		Advanced Hemostasis Techniques*	2
MLS 1324		Histochemistry*	2
MLS 1330		Basic MLS Immunohematology*	2
MLS 1331		Basic MLS Clinical Immunology*	3
MLS 1333		Immunohematology*	2
MLS 1341		Basic MLS Clinical Microbiology*	4
MLS 1351		Basic MLS Clinical Chemistry*	4
MLS 1642		Medical Parasitology (offered days only)*	2
MLS 1890		Undergraduate Research*	2
MLS 4301		MLS Orientation (required if not working in the field)	2
MLS 4322	MLS 4323	Morphologic Hematology 1, 2	6
MLS 4365		Quality Control	3

Electives

Histology, psychology, economics, sociology, statistics, hematology, a computer course, and epidemiology are strongly recommended electives.			
Humanities			9
Social Sciences			9
Open Electives			18

Total Quarter Hours	187-192
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*Tuition for this course is at the Basic College rate. Please refer to the current Northeastern University *Basic Day College Course Description and Curriculum Guide* for the course description. To register, call 617-437-3664.

Nursing (Evening Section)

A Bachelor of Science in Nursing degree is available to registered nurses in collaboration with the College of Nursing, which is fully accredited by the National League for Nursing.

University College's Bachelor of Science in Nursing program is unique in that it allows students to fulfill, in the evening, both classroom and clinical components of *Nursing Transition* (NUR 4300), *Community Health Nursing* (NUR 4500), *Contemporary Nursing* (NUR 4501), and *Introduction to Nursing Research* (NUR 4502). It is unique, too, in that a registered nurse who completes *Nursing Transition* (NUR 4300) with a grade of B or better is eligible for 22 quarter hours of advanced placement credit, plus any transfer credits University College may accept from another institution.

Admission Procedure

The following credentials are required to enter the part-time evening program and should be forwarded to the Director of Academic and Student Affairs, University College, Northeastern University, 360 Huntington Avenue, Boston, MA 02115:

- a résumé detailing education, professional work experience, and professional and community activities

- official transcripts from high school, college or university, and basic nursing school (the nursing school transcript should include a senior summary statement)

- a copy of your Massachusetts Registered Nurse license

- a completed Nursing Program Application (available from the Office of Academic and Student Affairs)

- a reference from your most recent nursing employer

- proof of satisfactory completion of the NLN Mobility Profile II Examination

Pre-admission counseling is available by calling the Office of Academic and Student Affairs at 617-437-2400.

Planning a Program of Study

Potential students must plan their program of study with the Academic Coordinator.

Appointments may be arranged by calling 617-437-2818.

Potential and current students are encouraged to attend group information sessions in order to increase their awareness of University College and College of Nursing policies. These sessions cover course requirements, promotional policies, advanced placement examinations, and nursing course petition procedures. To register, call 617-437-2818.

Nursing (Evening Section)**Bachelor of Science in Nursing Degree (Major Code 809)**

Core Courses				quarter hours
ENG 4110	ENG 4111		Critical Writing 1, 2	6
ENG 4112			Approaches to Literature	3
BIO 4103	BIO 4104		Biology 1, 2	8
BIO 4175	BIO 4176	BIO 4177	Human Anatomy and Physiology 1, 2, 3	9
BIO 4190			Microbiology I	3
CHM 4111	CHM 4112	CHM 4113	General Chemistry 1, 2, 3	9
NUR 4302			Pharmacodynamics	(3)
or			or	
HSC 4601			Advanced Pharmacology	(3)
PSY 4110			Fundamental Issues in Psychology	3
PSY 4111			Developmental Aspects in Psychology	3
PSY 4112			Personal Dynamics in Psychology	3
PSY 4240	PSY 4241	PSY 4242	Developmental Psychology 1, 2, 3	9
PSY 4270	PSY 4271		Social Psychology 1, 2	6
SOA 4101			Cultural Anthropology: Preliterate Societies	3
SOA 4102			Cultural Anthropology: Industrial Societies	3
SOC 4100			Fundamental Issues in Sociology	3
SOC 4101			The Individual and Social Roles	3
Major Concentration Courses				
NUR 4300			Nursing Transition*	9
NUR 4301			Psychiatric Mental Health Nursing†	7
NUR 4400			Maternal Child Nursing†	9
NUR 4401			Medical Surgical Nursing†	9
NUR 4500			Community Health Nursing	9
NUR 4501			Contemporary Nursing	5
NUR 4502			Introduction to Nursing Research	4
Electives				
History				3
Humanities				9
Open Electives				15
Total Quarter Hours				178

*To enroll in NUR 4300, students must submit a petition to the Academic Coordinator at least one full quarter in advance of registering. Students must also obtain a health clearance from the Lane Health Center and present evidence of having had a tuberculin skin test within the previous 12 months. Advanced standing credit is awarded upon completion of this course with a grade of B or better.

† Challenge examinations are available for this course through the NLN Mobility Profile II Examination, a component of the admissions process.

Radiologic (X-ray) Technology

The Radiologic Technology program is a joint offering of the University and several area hospitals. Classroom experiences are provided by the University and the laboratory practicum is conducted at an assigned affiliated hospital. The program is accredited by the Council on Medical Education of the American Medical Association.

The radiologic technologist is an important figure in the diagnostic and therapeutic environment of the hospital or clinic and in industrial production, quality control, and inspection laboratories. Responsibilities demand rapport with internists, surgeons, pathologists, nurses, and laboratory personnel. Industrial competency requires close association with metallurgists, production and manufacturing specialists, engineers, and scientists.

Prerequisite: Satisfactory completion of three years of high school math (*Algebra 1* and *2* and geometry), one year of biology, and one year of chemistry or physics. Applicants must also satisfactorily complete the Scholastic Aptitude Test (SAT) and submit one letter of recommendation

from a science instructor. In addition, applicants must satisfy general University requirements and satisfactorily complete the University's Mathematics Placement Test. Candidates who successfully meet the above requirements may then schedule an interview with the Radiologic Technology program director.

Associate in Science Degree Program

The Associate in Science degree program is a 29-month, full-time, day program. Graduates are eligible to sit for examination for certification by the American Registry of Radiologic Technologists. Students who complete the associate's degree and are interested in a bachelor's degree may want to consider the Health Science or Health Management major. These students are encouraged to discuss these options with an academic advisor.

Part-time Evening Program

Candidates who wish to apply to the part-time Associate in Science degree program in radiologic technology must be certified by the American Registry of Radiologic Technologists.

Radiologic Technology Associate in Science Degree (Major Code 806)

Core Courses		quarter hours
ENG 4110	ENG 4111	Critical Writing I, 2
ENG 4112		Approaches to Literature
MTH 4110	MTH 4111	Mathematics I, 2
PSY 4110		Fundamental Issues in Psychology
PSY 4111		Developmental Aspects in Psychology
BIO 4103	BIO 4105	Biology I, 3
MGT 4101		Introduction to Business and Management I*
MIS 4101		Introduction to Data Processing and Information Systems I

Continued

Major Concentration Courses

RAD 4100	RAD 4101	Radiologic Technology Orientation 1, 2	6
RAD 4102	RAD 4103	Radiologic Science 1, 2	8
RAD 4104	RAD 4105	Principles of Radiology 1, 2	8
RAD 4106	RAD 4107	Radiologic Photography and Exposure 1, 2	8
RAD 4112	RAD 4114	Gross Anatomy and General Physiology 1, 2	6
RAD 4113	RAD 4115	Anatomy and Physiology Lab 1, 2	2
RAD 4300	RAD 4301	Advanced Radiologic Technology 1, 2	6
RAD 4302		Imaging Modalities*	3
RAD 4303		Radiation Protection and Radiobiology*	3
RAD 4108	RAD 4109	RAD 4110	Radiologic Clinical
RAD 4111		Practicum 1, 2, 3, 4	12
RAD 4304		Cross-Sectional Anatomy	4

Total Quarter Hours**101**

*Courses are scheduled in the late afternoon for certificate students who wish to continue for the Associate in Science degree.

Radiologic Technology Part-time Evening Program
Associate in Science Degree (Major Code 806)
Core Courses

quarter hours

Transfer credit for completion of prerequisite*			50
ENG 4110	ENG 4111	Critical Writing 1, 2	6
ENG 4112		Approaches to Literature	3
MTH 4110	MTH 4111	Mathematics 1, 2	6
PSY 4110		Fundamental Issues in Psychology	(3)
or		or	
SOC 4100		Fundamental Issues in Sociology	(3)
PSY 4111		Developmental Aspects in Psychology	(3)
or		or	
SOC 4101		The Individual and Social Roles	(3)
BIO 4103	BIO 4105	Biology 1, 3	8
MGT 4101		Introduction to Business and Management I	3
MIS 4101		Introduction to Data Processing and Information Systems I	3

Major Concentration Courses

RAD 4300	RAD 4301	Advanced Radiologic Technology 1, 2†	6
RAD 4302		Imaging Modalities†	3
RAD 4303		Radiation Protection and Radiobiology	3
RAD 4304		Cross-Sectional Anatomy	4

Total Quarter Hours**101**

*Prerequisite: Satisfactory completion of a certificate program in radiologic technology or registration by the American Registry of Radiologic Technologists.

† Courses are scheduled in the late afternoon for certificate students who wish to continue for the Associate in Science degree.

Therapeutic Recreation Services

Therapeutic recreation, which is concerned with the revitalization of the mind, body, spirit, and skills of people in rehabilitation facilities, community settings, nursing homes, and hospitals, has emerged as an important part of the team concept in human services.

The Therapeutic Recreation Certificate verifies that a basic level of competence in this field has been attained. The Massachusetts Recreation and Park Association recognizes both the certificate

and associate's degree programs in its professional registration plan. The associate's degree program leads to a paraprofessional classification with the National Council for Therapeutic Recreation Certification.

Students in the certificate and associate's degree programs may go on to pursue a Bachelor of Science degree in Health Management or Sociology in University College or in Therapeutic Recreation in the day, undergraduate program of Northeastern's Department of Health, Sport, and Leisure Studies.

Therapeutic Recreation Services Activity Leader Certificate Program (Major Code 601)

Core Courses		quarter hours
ENG 4110	Critical Writing I	3

Major Concentration Courses

REC 4101	REC 4102	REC 4103	Principles and Practices of Therapeutic Recreation I, 2, 3	9
REC 4110	REC 4111		Group Dynamics and Leadership I, 2	6
REC 4500	REC 4501		Field Practicum in Therapeutic Recreation I, 2*	(8)
or			or	
REC 4802	REC 4803		Independent Study I, 2†	(8)

Electives

Select 6 quarter hours from the following:

REC 4300	REC 4301	Arts and Crafts I, 2	(6)
REC 4310		Social Recreation	(3)
REC 4311		Music Therapy	(3)
REC 4312		Media Resources and Techniques	(3)
REC 4313		Therapeutic Use of Dramatics	(3)

Select 6 quarter hours from the following:

REC 4401		The Nursing Home Experience	(3)
REC 4410		Therapeutic Recreation in Rehabilitation	(3)
REC 4425		Mental Illness and Retardation	(3)
REC 4430		Therapeutic Recreation in Child Development	(3)
REC 4440		Humanistic Approaches to Recreational Therapy	(3)
REC 4445		Community Recreation for the Handicapped	(3)
REC 4460		The Process of Aging	(3)
REC 4461		Camping for the Disabled	(3)
REC 4462		Leisure Counseling	(3)

Total Quarter Hours **38**

*See course description for prerequisites; eligibility is determined by the program consultant. Petitions can be obtained in the Health Professions Program office and should be filed at least one quarter in advance of the start of the practicum.

†Permission is required for this option.

Therapeutic Recreation Services Associate in Science Degree (Major Code 600)**Core Courses**

quarter hours

ENG 4110	ENG 4111	Critical Writing 1, 2	6	
ENG 4112		Approaches to Literature	3	
BIO 4103	BIO 4104	Biology 1, 2	8	
BIO 4175	BIO 4176	BIO 4177	Anatomy and Physiology 1, 2, 3	9
HRA 4302		Medical Terminology Survey	3	
HSC 4301	HSC 4302	Foundations of Medical Science 1, 2	6	
PSY 4110		Fundamental Issues in Psychology	3	
PSY 4111		Developmental Aspects in Psychology	3	
PSY 4112		Personal Dynamics in Psychology	3	
SOC 4225		Social Gerontology	3	

Major Concentration Courses

REC 4101	REC 4102	REC 4103	Principles and Practices of Therapeutic Recreation I, 2, 3	9
REC 4110	REC 4111		Group Dynamics and Leadership I, 2	6
REC 4420			Activity and Movement Analysis	3
REC 4500	REC 4501		Field Practicum in Therapeutic Recreation I, 2*	(8)
or			or	
REC 4802	REC 4803		Independent Study I, 2†	(8)

Electives*Select 24 quarter hours from the following:*

REC 4300	REC 4301	Arts and Crafts I, 2	6
REC 4310		Social Recreation	3
REC 4311		Music Therapy	3
REC 4312		Media Resources and Techniques	3
REC 4313		Therapeutic Use of Dramatics	3

Select 6 quarter hours from the following:

REC 4401		The Nursing Home Experience	3
REC 4410		Therapeutic Recreation in Rehabilitation	3
REC 4425		Mental Illness and Retardation	3
REC 4430		Therapeutic Recreation in Child Development	3
REC 4440		Humanistic Approaches to Recreational Therapy	3
REC 4445		Community Recreation for the Handicapped	3
REC 4460		The Process of Aging	3
REC 4461		Camping for the Disabled	3
REC 4462		Leisure Counseling	3

Total Quarter Hours**97**

*See course description for prerequisites; eligibility is determined by the program consultant. Petitions may be obtained in the Health Professions Program office and should be filed at least one quarter in advance of the start of the practicum.

† Permission is required for this option.



Law Enforcement Degree Programs

Robert D. Croatti, *Associate Dean*
Acting Director, Law Enforcement Programs

144 Knowles-Volpe Hall
 617-437-3327

Purpose

Law enforcement programs are designed to provide students with a broadly based, undergraduate education with a professional focus, to ensure that program graduates are academically prepared to enter or advance in careers in criminal justice or security administration or to enroll in graduate or professional schools.

Programs

Requirements for each program are outlined on the following pages. Upon petition, students may be permitted to substitute other courses that will more adequately serve their specific objectives.

Bachelor of Science Degree Programs

Programs leading to the Bachelor of Science degree are offered in correctional practices, law enforcement, and security. Students should choose their major field of study in consultation with a program advisor.

Each curriculum provides for not less than 174 quarter hours of work, including at least 75 quarter hours of advanced work in a major field.

Transfer students must complete at least 45 quarter hours of academic work at University College immediately preceding graduation in order to be eligible for a degree.

Associate in Science Degree Programs

Programs leading to the associate's degree are offered for those who wish to obtain a general background in correctional practices, law enforcement, or security and who may later wish to pursue a bachelor's degree.

Candidates for the Associate in Science degree must complete a minimum of 96 quarter hours of credit. This is approximately one half of the requirements for the Bachelor of Science degree and includes at least 48 quarter hours of work in a major field.

Honors Program

The Honors Program is designed to provide qualified students with the opportunity to achieve broader experience within their chosen fields.

In general, the program consists of independent study, a directed reading seminar, independent research projects, and special seminars. Each student's program is arranged in consultation with the Program Director and the Honors Faculty Committee.

The Honors Program is open to all law enforcement degree candidates in University College who have obtained an associate's degree or equivalent and have a minimum cumulative grade-point average of 3.0. Students who are eligible for this program may apply for admission to the Director of Law Enforcement Programs.

For course descriptions, see page 152.

Course Sequence

Upon completion of the courses required for admission, the student should elect courses from the core and major concentration areas to fulfill the requirements for the Associate in Science and the Bachelor of Science degrees.

Degree requirements may be completed at the student's own pace. A total of 32 courses is required for an Associate in Science degree, which may be completed in as little time as three years, or nine academic quarters. A Bachelor of Science degree may be completed over a period of five years, or 15 academic quarters. This schedule averages out to four courses per academic quarter.

Distribution Requirements

In order to satisfy the distribution requirements in any law enforcement program, students should first discuss their programs with an academic advisor.

English courses ENG 4110, ENG 4111, and ENG 4112 (9 quarter hours), must be taken prior to admission to a degree program. The remaining required courses, amounting to 33 to 36 quarter hours, should be taken from the core and major concentration courses as listed on the following pages.

Field Work Courses

Field work courses (see LEN 4899) provide an opportunity for students to apply their academic background to practical problems in the areas of law enforcement, corrections, and security.

A field work course shall have the following characteristics:

- 1 It shall be a one-quarter course worth 6 quarter hours of credit.
- 2 Only degree candidates may register.
- 3 Prior to registration, each student should consult with the Program Director.
- 4 Each student shall meet with the departmental field work advisor as frequently as the advisor feels necessary, but in any case no fewer than three times per quarter: once to formulate the program of field work experience, once to discuss ongoing work, and once to transmit and discuss the written report.
- 5 Each student shall spend a minimum of 15 hours per week at the outside agency on a volunteer or paid basis.
- 6 The student's grade shall be dependent upon both the quality of the experience as demonstrated in the final report and the discussions between the field work advisor and the outside supervisor.
- 7 Each student shall make his or her own arrangements for carrying on suitable field work at a departmentally acceptable agency involving field work experience.
- 8 The Program Director will participate in a student's placement solely in an advisory capacity.

Correctional Practices Associate in Science Degree (Major Code 945)**Core Courses**

quarter hours

ENG 4110	ENG 4111	Critical Writing 1, 2	6
ENG 4112		Approaches to Literature	3
PHL 4230		Ethics in Theory and Practice	3
PHL 4231		Current Topics in Ethics	3
SOC 4100		Fundamental Issues in Sociology	3
SOC 4101		The Individual and Social Roles	3
SOC 4102		Critical Issues Facing Society	3

Major Concentration Courses

LEN 4112		The American Correctional System	3
LEN 4115	LEN 4116	Correctional Administration 1, 2	6
LEN 4132	LEN 4133	Administration of Justice 1, 2	6
LEN 4136	LEN 4137	Criminal Law 1, 2	6
LEN 4315	LEN 4316	Criminology 1, 2	6

Electives**Law Enforcement**

Select 21 quarter hours from the following courses. Not more than 9 quarter hours of seminar courses may be elected to satisfy this requirement.

LEN 4120	LEN 4121	Juvenile Corrections 1, 2	(6)
LEN 4126		Correctional Practices Seminar	(3)
LEN 4128		Victimology Seminar	(3)
LEN 4129		Criminal Behavior Seminar	(3)
LEN 4138	LEN 4139	Evidence and Court Procedure 1, 2	(6)
LEN 4300		Human Rights in Corrections	(3)
LEN 4302		Correctional Counseling	(3)
LEN 4305	LEN 4306	Advanced Correctional Practices 1, 2	(6)
LEN 4311		Research Methods in Criminal Justice	(3)
LEN 4312	LEN 4313	Treatment of Offenders 1, 2	(6)
LEN 4317	LEN 4318	Probation and Parole Practices 1, 2	(6)
LEN 4899		Field Work in Law Enforcement, Correctional Practices, and Security	(6)

Continued

Other Electives*Select 24 quarter hours from the following:*

ASL 4101	ASL 4102	American Sign Language 1, 2	(8)
HRM 4301		Organizational Behavior	(3)
HRM 4302		Introduction to Human Resources Management	(3)
HST 4101		The Civilization of the Ancient and Medieval Worlds	(3)
HST 4102		The Civilization of the Early Modern World	(3)
HST 4103		The Civilization of the Modern World	(3)
HST 4201		American History 1763–1848	(3)
HST 4202		American History 1848–1917	(3)
HST 4203		American History since 1917	(3)
MIS 4101	MIS 4102	Introduction to Data Processing and Information Systems 1, 2	(6)
POL 4103		Introduction to Politics	(3)
POL 4104		Introduction to American Government	(3)
POL 4105		Introduction to Comparative Politics	(3)
POL 4300	POL 4301	Public Administration 1, 2	(6)
POL 4310		American Political Thought	(3)
POL 4312		Political Parties and Pressure Groups	(3)
POL 4320		American Constitutional Law	(3)
POL 4321		Civil Liberties	(3)
POL 4322		Procedural Due Process	(3)
POL 4335		Formulating American Foreign Policy	(3)
POL 4375	POL 4376	POL 4377	Consumer Advocacy 1, 2, 3
PSY 4110		Fundamental Issues in Psychology	(3)
PSY 4111		Developmental Aspects in Psychology	(3)
PSY 4112		Personal Dynamics in Psychology	(3)
PSY 4270	PSY 4271	Social Psychology 1, 2	(6)
PSY 4372	PSY 4373	PSY 4374	Abnormal Psychology 1, 2, 3
SOC 4125		Social Problems	(3)
SOC 4147		Urban Sociology	(3)
SOC 4170		Race and Ethnic Relations	(3)
SOC 4186		Social Control	(3)

Total Quarter Hours**96**

Correctional Practices Bachelor of Science Degree (Major Code 944)**Core Courses**

quarter hours

ENG 4110	ENG 4111	Critical Writing 1, 2	6
ENG 4112		Approaches to Literature	3
MTH 4110	MTH 4111	Mathematics 1, 2	6
PSY 4110		Fundamental Issues in Psychology	3
PSY 4111		Developmental Aspects in Psychology	3
PSY 4112		Personal Dynamics in Psychology	3
SOC 4100		Fundamental Issues in Sociology	3
SOC 4101		The Individual and Social Roles	3
SOC 4102		Critical Issues Facing Society	3
PHL 4230		Ethics in Theory and Practice	3
PHL 4231		Current Topics in Ethics	3
HRM 4301		Organizational Behavior	3
HRM 4302		Introduction to Human Resources Management	3
SOC 4125		Social Problems	3
SOC 4186		Social Control	3

Major Concentration Courses

LEN 4112		The American Correctional System	3
LEN 4115	LEN 4116	Correctional Administration 1, 2	6
LEN 4132	LEN 4133	Administration of Justice 1, 2	6
LEN 4136	LEN 4137	Criminal Law 1, 2	6
LEN 4300		Human Rights in Corrections	3
LEN 4302		Correctional Counseling	3
LEN 4305	LEN 4306	Advanced Correctional Practices 1, 2	6
LEN 4312	LEN 4313	Treatment of Offenders 1, 2	6
LEN 4315	LEN 4316	Criminology 1, 2	6
LEN 4317	LEN 4318	Probation and Parole Practices 1, 2	6

Electives**Law Enforcement**

Select 36 quarter hours from the following courses. Not more than 18 quarter hours of seminar courses may be elected to satisfy this requirement.

LEN 4120	LEN 4121	Juvenile Corrections 1, 2	(6)
LEN 4126		Correctional Practices Seminar	(3)
LEN 4128		Victimology Seminar	(3)
LEN 4129		Criminal Behavior Seminar	(3)
LEN 4134	LEN 4135	Civil Law in Criminal Justice 1, 2	(6)
LEN 4138	LEN 4139	Evidence and Court Procedure 1, 2	(6)
LEN 4140	LEN 4141	Fire Investigation and Arson 1, 2	(6)
LEN 4308		Comparative Correctional Systems	(3)
LEN 4335		Organized Crime Seminar	(3)
LEN 4899		Field Work in Law Enforcement, Correctional Practices, and Security	(6)

Continued

Other Electives*Select 36 quarter hours from the following:*

ASL 4101	ASL 4102		American Sign Language 1, 2	(8)
ECN 4115	ECN 4116	ECN 4117	Economic Principles and Problems 1, 2, 3	(9)
HST 4101			The Civilization of the Ancient and Medieval Worlds	(3)
HST 4102			The Civilization of the Early Modern World	(3)
HST 4103			The Civilization of the Modern World	(3)
HST 4201			American History 1763–1848	(3)
HST 4202			American History 1848–1917	(3)
HST 4203			American History since 1917	(3)
MIS 4101	MIS 4102		Introduction to Data Processing and Information Systems 1, 2	(6)
POL 4103			Introduction to Politics	(3)
POL 4104			Introduction to American Government	(3)
POL 4105			Introduction to Comparative Politics	(3)
POL 4300	POL 4301		Public Administration 1, 2	(6)
POL 4310			American Political Thought	(3)
POL 4312			Political Parties and Pressure Groups	(3)
POL 4320			American Constitutional Law	(3)
POL 4321			Civil Liberties	(3)
POL 4322			Procedural Due Process	(3)
POL 4335			Formulating American Foreign Policy	(3)
POL 4375	POL 4376	POL 4377	Consumer Advocacy 1, 2, 3	(9)
PSY 4270	PSY 4271		Social Psychology 1, 2	(6)
PSY 4372	PSY 4373	PSY 4374	Abnormal Psychology 1, 2, 3	(9)
SOA 4100			Physical Anthropology	(3)
SOA 4101			Cultural Anthropology: Preliterate Societies	(3)
SOA 4102			Cultural Anthropology: Industrial Societies	(3)
SOC 4147			Urban Sociology	(3)
SOC 4170			Race and Ethnic Relations	(3)
SOC 4245			Sociology of Inequality	(3)

Total Quarter Hours**174**

Law Enforcement Associate in Science Degree (Major Code 941)**Core Courses**

			quarter hours
ENG 4110	ENG 4111	Critical Writing 1, 2	6
ENG 4112		Approaches to Literature	3
PSY 4110		Fundamental Issues in Psychology	3
PSY 4111		Developmental Aspects in Psychology	3
PSY 4112		Personal Dynamics in Psychology	3
PHL 4230		Ethics in Theory and Practice	3
PHL 4231		Current Topics in Ethics	3

Major Concentration Courses

LEN 4100	LEN 4101	Criminal Investigation and Case Preparation 1, 2	6
LEN 4110	LEN 4111	Introduction to Criminalistics 1, 2	6
LEN 4132	LEN 4133	Administration of Justice 1, 2	6
LEN 4136	LEN 4137	Criminal Law 1, 2	6
LEN 4315	LEN 4316	Criminology 1, 2	6

Electives**Law Enforcement**

Select 24 quarter hours from the following courses. Not more than 6 quarter hours of seminar courses may be elected to satisfy this requirement.

LEN 4107		Police-Community Relations	(3)
LEN 4108	LEN 4109	The Patrol Function 1, 2	(6)
LEN 4118		Police Work with Juveniles	(3)
LEN 4128		Victimology Seminar	(3)
LEN 4129		Criminal Behavior Seminar	(3)
LEN 4134	LEN 4135	Civil Law in Criminal Justice 1, 2	(6)
LEN 4138	LEN 4139	Evidence and Court Procedure 1, 2	(6)
LEN 4140	LEN 4141	Fire Investigation and Arson 1, 2	(6)
LEN 4311		Research Methods in Criminal Justice	(3)
LEN 4314		Police Supervision	(3)
LEN 4899		Field Work in Law Enforcement, Correctional Practices, and Security	(6)

Continued

Other Electives*Select 18 quarter hours from the following:*

ASL 4101	ASL 4102	American Sign Language 1, 2	(8)	
HST 4101		The Civilization of the Ancient and Medieval Worlds	(3)	
HST 4102		The Civilization of the Early Modern World	(3)	
HST 4103		The Civilization of the Modern World	(3)	
HST 4201		American History 1763–1848	(3)	
HST 4202		American History 1848–1917	(3)	
HST 4203		American History since 1917	(3)	
HRM 4301		Organizational Behavior	(3)	
HRM 4302		Introduction to Human Resources Management	(3)	
MIS 4101	MIS 4102	Introduction to Data Processing and Information Systems 1, 2	(6)	
POL 4103		Introduction to Politics	(3)	
POL 4104		Introduction to American Government	(3)	
POL 4105		Introduction to Comparative Politics	(3)	
POL 4300	POL 4301	Public Administration 1, 2	(6)	
POL 4310		American Political Thought	(3)	
POL 4312		Political Parties and Pressure Groups	(3)	
POL 4320		American Constitutional Law	(3)	
POL 4321		Civil Liberties	(3)	
POL 4322		Procedural Due Process	(3)	
POL 4335		Formulating American Foreign Policy	(3)	
POL 4375	POL 4376	POL 4377	Consumer Advocacy 1, 2, 3	(9)
PSY 4270	PSY 4271		Social Psychology 1, 2	(6)
PSY 4372	PSY 4373	PSY 4374	Abnormal Psychology 1, 2, 3	(9)
SOC 4100			Fundamental Issues in Sociology	(3)
SOC 4101			The Individual and Social Roles	(3)
SOC 4102			Critical Issues Facing Society	(3)
SOC 4186			Social Control	(3)
SPC 4251			Business and Professional Speaking	(3)

Total Quarter Hours**96**

Law Enforcement Bachelor of Science Degree (Major Code 940)

Core Courses				quarter hours
ENG 4110	ENG 4111		Critical Writing 1, 2	6
ENG 4112			Approaches to Literature	3
MTH 4110	MTH 4111		Mathematics 1, 2	6
PSY 4110			Fundamental Issues in Psychology	3
PSY 4111			Developmental Aspects in Psychology	3
PSY 4112			Personal Dynamics in Psychology	3
SOC 4100			Fundamental Issues in Sociology	3
SOC 4101			The Individual and Social Roles	3
SOC 4102			Critical Issues Facing Society	3
ECN 4115	ECN 4116	ECN 4117	Economic Principles and Problems 1, 2, 3	9
PHL 4230			Ethics in Theory and Practice	3
PHL 4231			Current Topics in Ethics	3

Major Concentration Courses

LEN 4100	LEN 4101		Criminal Investigation and Case Preparation 1, 2	6
LEN 4110	LEN 4111		Introduction to Criminalistics 1, 2	6
LEN 4132	LEN 4133		Administration of Justice 1, 2	6
LEN 4136	LEN 4137		Criminal Law 1, 2	6
LEN 4315	LEN 4316		Criminology 1, 2	6
LEN 4319	LEN 4320		Law Enforcement Management and Planning 1, 2	6

Electives**Law Enforcement**

Select 42 quarter hours from the following courses. Not more than 18 quarter hours of seminar courses may be elected to satisfy this requirement.

LEN 4102		Comparative Police Systems	(3)
LEN 4107		Police-Community Relations	(3)
LEN 4108	LEN 4109	The Patrol Function 1, 2	(6)
LEN 4118		Police Work with Juveniles	(3)
LEN 4128		Victimology Seminar	(3)
LEN 4129		Criminal Behavior Seminar	(3)
LEN 4134	LEN 4135	Civil Law in Criminal Justice 1, 2	(6)
LEN 4138	LEN 4139	Evidence and Court Procedure 1, 2	(6)
LEN 4140	LEN 4141	Fire Investigation and Arson 1, 2	(6)
LEN 4311		Research Methods in Criminal Justice	(3)
LEN 4314		Police Supervision	(3)
LEN 4335		Organized Crime Seminar	(3)
LEN 4338		Forensic Laboratory Seminar	(3)
LEN 4340	LEN 4341	Civil Liberties and the Police 1, 2	(6)
LEN 4899		Field Work in Law Enforcement, Correctional Practices, and Security	(6)

Continued

Other Electives*Select 48 quarter hours from the following:*

ASL 4101	ASL 4102		American Sign Language 1, 2	(8)
ECN 4140			Economics of Crime	(3)
HRM 4301			Organizational Behavior	(3)
HRM 4302			Introduction to Human Resources Management	(3)
POL 4103			Introduction to Politics	(3)
POL 4104			Introduction to American Government	(3)
POL 4105			Introduction to Comparative Politics	(3)
POL 4300	POL 4301		Public Administration 1, 2	(6)
POL 4310			American Political Thought	(3)
POL 4312			Political Parties and Pressure Groups	(3)
POL 4320			American Constitutional Law	(3)
POL 4321			Civil Liberties	(3)
POL 4322			Procedural Due Process	(3)
POL 4335			Formulating American Foreign Policy	(3)
POL 4375	POL 4376	POL 4377	Consumer Advocacy 1, 2, 3	(9)
PSY 4270	PSY 4271		Social Psychology 1, 2	(6)
PSY 4372	PSY 4373	PSY 4374	Abnormal Psychology 1, 2, 3	(9)
SOC 4125			Social Problems	(3)
SOC 4186			Social Control	(3)
SOC 4205			Law and Society	(3)
SPC 4251			Business and Professional Speaking	(3)

Total Quarter Hours**174**

Security Associate in Science Degree (Major Code 943)**Core Courses**

quarter hours

ENG 4110	ENG 4111	Critical Writing I, 2	6
ENG 4112		Approaches to Literature	3
SOC 4100		Fundamental Issues in Sociology	3
SOC 4101		The Individual and Social Roles	3
SOC 4102		Critical Issues Facing Society	3
MGT 4101	MGT 4102	Introduction to Business and Management I, 2	6
POL 4320		American Constitutional Law	3

Major Concentration Courses

LEN 4100	LEN 4101	Criminal Investigation and Case Preparation I, 2	6
LEN 4103		Introduction to Industrial Security	3
LEN 4132	LEN 4133	Administration of Justice I, 2	6
LEN 4136	LEN 4137	Criminal Law I, 2	6
LEN 4138	LEN 4139	Evidence and Court Procedure I, 2	6
LEN 4144	LEN 4145	Security Administration I, 2	6
LEN 4147		Legal Aspects of Security Operations	3
LEN 4315	LEN 4316	Criminology	6

Electives**Law Enforcement**

Select 15 quarter hours from the following courses. Not more than 9 quarter hours of seminar courses may be elected to satisfy this requirement.

LEN 4110	LEN 4111	Introduction to Criminalistics I, 2	(6)
LEN 4122		Industrial Fire Prevention	(3)
LEN 4123		Retail Security	(3)
LEN 4127		Current Security Problems	(3)
LEN 4128		Victimology Seminar	(3)
LEN 4129		Criminal Behavior Seminar	(3)
LEN 4134	LEN 4135	Civil Law in Criminal Justice I, 2	(6)
LEN 4140	LEN 4141	Fire Investigation and Arson I, 2	(6)
LEN 4319	LEN 4320	Law Enforcement Management and Planning I, 2	(6)
LEN 4322	LEN 4323	Physical Security I, 2	(6)
LEN 4335		Organized Crime Seminar	(3)
LEN 4899		Field Work in Law Enforcement, Correctional Practices, and Security	(6)

Continued

Other Electives*Select 12 quarter hours from the following:*

ACC 4101	ACC 4102	Accounting Principles 1, 2	(6)	
ASL 4101	ASL 4102	American Sign Language 1, 2	(8)	
FI 4301		Principles of Finance	(3)	
HRM 4301		Organizational Behavior	(3)	
HRM 4302		Introduction to Human Resources Management	(3)	
HST 4101		The Civilization of the Ancient and Medieval Worlds	(3)	
HST 4102		The Civilization of the Early Modern World	(3)	
HST 4103		The Civilization of the Modern World	(3)	
HST 4201		American History 1763–1848	(3)	
HST 4202		American History 1848–1917	(3)	
HST 4203		American History since 1917	(3)	
MIS 4101	MIS 4102	Introduction to Data Processing and Information Systems 1, 2	(6)	
MIS 4360		Computer Privacy and Security	(3)	
PHL 4200		Logic	(3)	
PHL 4230		Ethics in Theory and Practice	(3)	
PHL 4231		Current Topics in Ethics	(3)	
POL 4103		Introduction to Politics	(3)	
POL 4104		Introduction to American Government	(3)	
POL 4105		Introduction to Comparative Politics	(3)	
POL 4300	POL 4301	Public Administration 1, 2	(6)	
POL 4310		American Political Thought	(3)	
POL 4312		Political Parties and Pressure Groups	(3)	
POL 4321		Civil Liberties	(3)	
POL 4322		Procedural Due Process	(3)	
POL 4375	POL 4376	POL 4377	Consumer Advocacy 1, 2, 3	(9)
PSY 4110		Fundamental Issues in Psychology	(3)	
PSY 4111		Developmental Aspects in Psychology	(3)	
PSY 4112		Personal Dynamics in Psychology	(3)	
PSY 4390	PSY 4391	PSY 4392	Industrial Psychology 1, 2, 3	(9)
SPC 4251		Business and Professional Speaking	(3)	

Total Quarter Hours**96**

Security Bachelor of Science Degree (Major Code 942)

Core Courses				quarter hours
ENG 4110	ENG 4111		Critical Writing 1, 2	6
ENG 4112			Approaches to Literature	3
MTH 4110	MTH 4111		Mathematics 1, 2	6
ECN 4115	ECN 4116	ECN 4117	Economic Principles and Problems 1, 2, 3	9
PSY 4110			Fundamental Issues in Psychology	3
PSY 4111			Developmental Aspects in Psychology	3
PSY 4112			Personal Dynamics in Psychology	3
SOC 4100			Fundamental Issues in Sociology	3
SOC 4101			The Individual and Social Roles	3
SOC 4102			Critical Issues Facing Society	3
MGT 4101	MGT 4102		Introduction to Business and Management 1, 2	6
POL 4320			American Constitutional Law	3

Major Concentration Courses

LEN 4100	LEN 4101	Criminal Investigation and Case Preparation 1, 2	6
LEN 4103		Introduction to Industrial Security	3
LEN 4132	LEN 4133	Administration of Justice 1, 2	6
LEN 4136	LEN 4137	Criminal Law 1, 2	6
LEN 4138	LEN 4139	Evidence and Court Procedure 1, 2	6
LEN 4144	LEN 4145	Security Administration 1, 2	6
LEN 4147		Legal Aspects of Security Operations	3
LEN 4315	LEN 4316	Criminology 1, 2	6
LEN 4322	LEN 4323	Physical Security 1, 2	6

Electives**Law Enforcement**

Select 39 quarter hours from the following courses. Not more than 18 quarter hours of seminar courses may be elected to satisfy this requirement.

LEN 4110	LEN 4111	Introduction to Criminalistics 1, 2	(6)
LEN 4122		Industrial Fire Prevention	(3)
LEN 4123		Retail Security	(3)
LEN 4127		Current Security Problems	(3)
LEN 4128		Victimology Seminar	(3)
LEN 4129		Criminal Behavior Seminar	(3)
LEN 4134	LEN 4135	Civil Law in Criminal Justice 1, 2	(6)
LEN 4140	LEN 4141	Fire Investigation and Arson 1, 2	(6)
LEN 4311		Research Methods in Criminal Justice	(3)
LEN 4319	LEN 4320	Law Enforcement Management and Planning 1, 2	(6)
LEN 4335		Organized Crime Seminar	(3)
LEN 4899		Field Work in Law Enforcement, Correctional Practices, and Security	(6)

Continued

Other Electives*Select 36 quarter hours from the following:*

ASL 4101	ASL 4102	American Sign Language 1, 2	(8)	
FI 4301		Principles of Finance	(3)	
HRM 4301		Organizational Behavior	(3)	
HRM 4302		Introduction to Human Resources Management	(3)	
HST 4101		The Civilization of the Ancient and Medieval Worlds	(3)	
HST 4102		The Civilization of the Early Modern World	(3)	
HST 4103		The Civilization of the Modern World	(3)	
HST 4201		American History 1763-1848	(3)	
HST 4202		American History 1848-1917	(3)	
HST 4203		American History since 1917	(3)	
MIS 4101	MIS 4102	Introduction to Data Processing and Information Systems 1, 2	(6)	
MIS 4360		Computer Privacy and Security	(3)	
PHL 4200		Logic	(3)	
PHL 4230		Ethics in Theory and Practice	(3)	
PHL 4231		Current Topics in Ethics	(3)	
POL 4103		Introduction to Politics	(3)	
POL 4104		Introduction to American Government	(3)	
POL 4105		Introduction to Comparative Politics	(3)	
POL 4300	POL 4301	Public Administration 1, 2	(6)	
POL 4310		American Political Thought	(3)	
POL 4312		Political Parties and Pressure Groups	(3)	
POL 4321		Civil Liberties	(3)	
POL 4322		Procedural Due Process	(3)	
POL 4375	POL 4376	POL 4377	Consumer Advocacy 1, 2, 3	(9)
PSY 4390	PSY 4391	PSY 4392	Industrial Psychology 1, 2, 3	(9)
SPC 4251			Business and Professional Speaking	(3)

Total Quarter Hours**174**

Liberal Arts Degree Programs

Marilyn Wiener, *Associate Dean
Director, Liberal Arts Programs*

Judith Stoessel, *Assistant to the Director
Liberal Arts Programs*

266 Ruggles Building
617-437-2416

Purpose

Intellectual growth—the development of the ability to think independently and creatively—rests upon the foundation of a sound general education. Through the liberal arts curricula, University College students are guided toward an appreciative understanding of the active discovery of ideas and methods in the areas of humanities, natural science, and social science. With this training, the student can more fully realize the basic values upon which civilization rests and can more fully participate in the intellectual, moral, and material achievement of that civilization.

University College holds that there is no inconsistency between a truly liberal education and preparation for a vocation. As an adventure in intellectual discovery, a liberal education leads to a broadening and intensification of interests as the student becomes aware of his or her own mental strengths and weaknesses. This discovery is essential for making more intelligent and realistic appraisals of self and career. A career brings meaning and focus to the educational experience. Education presents both a challenge to accept responsibility and an opportunity to seek knowledge and skills.

Programs

Both Bachelor of Arts and Bachelor of Science degrees are offered in art, English, history, music, political science, psychology, and sociology-anthropology. Unlike the Bachelor of Science degree, the Bachelor of Arts degree includes a language requirement. Bachelor of Science degrees more directly linked to the modern workplace are offered in graphic design and visual communication, economics, and technical communications; the technical communications degree includes a professional experience program. In addition, degree programs in English, political science, and sociology-anthropology offer professional concentrations designed to cover specialized skills and help create new career options for liberal arts students.

Bachelor of Arts in Liberal Studies Degree

Consistent with its aim to provide students with a sound liberal education, University College offers a Bachelor of Arts in Liberal Studies degree. Designed to help students develop communication, analytical, and research skills while exploring the great ideas of the ages and the issues facing modern times, the program's courses are grouped in four areas:

- Communication and Critical Thinking
- Cultural Heritage
- Science, Research, and Quantitative Methods
- Contemporary Studies

The courses in each area are selected to provide students with both a broad knowledge base and a depth of perception resulting from viewing several subjects from different disciplinary perspectives.

In addition, 45 quarter hours of elective credits are provided to allow students to take a certificate program or select individual courses in accordance with their personal and career interests.

Upon approaching completion of individual course work in Cultural Heritage and Contemporary Studies, students take an interdisciplinary seminar in each area to integrate their learning experiences.

Bachelor's Degree in Graphic Design and Visual Communication

In response to the rising demand for professional training in the field of visual communication, University College is introducing a Bachelor of Science degree program in graphic design and communication.

The program has a unique, three-tiered structure, enabling students to begin with the certificate program, continue through the associate's program, and finish with the bachelor's program.

Business Administration Minor

Liberal arts bachelor's degree candidates have the option of completing a minor in business administration. Students who wish to earn a minor in business administration must use some of the open electives permitted in their degree programs for this purpose and should meet with an academic advisor from the Office of Academic and Student Affairs to identify the appropriate courses. These students are permitted to accumulate up to 44 quarter hours (25 percent of the credits toward a bachelor's degree) in business subjects. Business credits accumulated beyond this limit cannot be used to fulfill the graduation requirements for a Bachelor of Science degree in a liberal arts area.

Associate in Science Degree

An Associate in Science degree program in arts and sciences is offered for those who want a general cultural background in liberal arts, but who do not want to pursue a major field of concentration for the bachelor's degree.

Certificate Programs

Students who seek specialized skills to advance their careers may choose from among the following humanities certificate programs, which may be taken independently or in conjunction with degree study: advertising and public relations, American sign language and deaf studies, American studies, gerontology, graphic design and visual communication, public administration, sign language interpreting, software technical writing, song writing, speech communication, and writing.

Directed Study

Students may be eligible to enroll in a maximum of two directed study courses in a liberal arts major. The directed study is intended primarily for the senior who is unable to take a course needed for graduation because of circumstances beyond his or her control (for example, the course was not available during the student's tenure in University College). Such students should contact the program office to obtain an application. Please refer to course descriptions for more detailed information.

Honors Program

An upperclass honors program enables superior students to pursue studies in their major fields in greater depth than is possible in the regular classes.

The nature of the program is determined by the department concerned. Programs may involve special research projects culminating in honor theses, seminars, reading projects, directed independent study, or creative work. Flexibility is the keynote, with every consideration given to the individual needs and requirements of the student. Honors advisors are chosen from the faculty of the department concerned.

Students who have earned 96 quarter hours of credit toward their bachelor's degree and who have a grade-point average of 3.0 or better are eligible to apply to the Director of Liberal Arts for admission to the program.

Field Work Courses

To provide the opportunity for students to apply their academic background to practical problems, the history, psychology, and sociology departments offer 6 quarter-hour courses in their curricula entitled "Field Work in...." Please refer to course descriptions for details. Guidelines are available from the Liberal Arts Program office.

Credit for Noncollegiate Experience (NCE)

Liberal arts degree candidates may obtain up to 16 quarter hours of noncollegiate experience credit (NCE) in all liberal arts areas except graphics, technical communications, and modern languages.

Whenever possible, NCE should be used as a substitute for specific liberal arts courses (for example, substituting NCE in Public Speaking for SPC 4251). When a specific course is deemed critical to the academic soundness of the major, a student may be asked to take the course but may, in addition, receive NCE credit in the subject area in which he or she has acquired special knowledge.

To apply for NCE credit, a student must file a petition listing the relevant courses and reasons for which credit should be received. He or she should also attach any materials that might serve as documentation.

Notification of acceptance or rejection of the petition is issued by the Office of Academic and Student Affairs, as directed by the Director of Liberal Arts, with the advice of the concerned departmental consultant(s). The latter determines whether the petitioner's NCE is equivalent to the course listings as claimed. Criteria for such evaluation may or may not include a formal examination, an interview, departmental consultation, or a request for additional documentation.

If positive action is taken on the petition, the resulting NCE credits may be applied toward a bachelor's degree. However, students should be aware of certain constraints. To have NCE credit counted to qualify for a given June graduation, the petition must be filed at least six months prior to the commencement date. NCE cannot be used to fulfill residence requirements. NCE credit cannot be given for courses that can be accredited through the CLEP testing program at the time of the petition. Grades are not assigned to NCE credits. It is possible that NCE credit may be applicable toward a degree in University College only.

Program Consultants and Advisers

ART: Arts (Arts, or Media and Graphic Communication)

Consultant/Program Adviser:

Prof. Samuel S. Bishop, Art Dept.

(College of Arts and Sciences) (437-2347)

Associate Coordinator: John Moore (782-3972)

ASL: American Sign Language

Consultant: Cathy Cogen, Director, ASL Program (College of Arts and Sciences) (voice 437-3064; TTY 437-3067)

Program Adviser: Nancy V. Becker, Coordinator, Educational Services, ASL Program (College of Arts and Sciences)

(voice 437-3064; TTY 437-3067)

DRA: Theatre Arts

Consultant: Prof. Ingrid H. Sonnichsen, Drama Dept. (College of Arts and Sciences) (437-2244)

ECN: Economics

Consultant: Prof. M. A. Horowitz, Chairman, Economics Dept. (College of Arts and Sciences) (437-2882)

Associate Consultant: Prof. H. Goldstein, Executive Officer, Economics Dept. (College of Arts and Sciences) (437-2882)

Assistant Consultant/Program Adviser: Herbert J. Eskot, Economics Dept. (College of Arts and Sciences) (437-2882)

ENG: English (Literature or Writing)

Consultant: Prof. M. X. Lesser, English Dept. (College of Arts and Sciences) (437-2512)

Program Adviser: Wallace Coyle (U. Mass./Boston) (922-8141)

HST: History

Consultant: Prof. Raymond H. Robinson, Chairman, History Dept. (College of Arts and Sciences) (437-2660)

Coordinator of Western Civilization and Program Adviser: Prof. Gerald H. Herman, History Dept. (College of Arts and Sciences) (437-2660)

JRN: Journalism, Public Relations, or Advertising

Consultant: Prof. Larue W. Gilleland, Chairman, Journalism Dept. (College of Arts and Sciences) (437-3236)

LIB: Library Systems

Consultant: Frank Seegraber (Boston College) (552-8000)

LN: Modern Languages

Consultant: Prof. Holbrook Robinson, Chairman, Modern Languages Dept. (College of Arts and Sciences) (437-2234)

Modern Languages includes the following:

LNA: Arabic	LNJ: Japanese
LNF: French	LNL: Latin
LNG: German	LNN: Swedish
LNH: Hebrew	LNS: Spanish
LNI: Italian	

MUS: Music

Consultant: Prof. Joshua R. Jacobson, Music Dept. (College of Arts and Sciences) (437-2240)

Program Adviser/Tutorial Coordinator: Charles Mokotoff (437-2240)

PHL: Philosophy and Religion

Consultant: Prof. E. Hacker, Philosophy Dept. (College of Arts and Sciences) (437-3636)

POL: Political Science

Consultant: Prof. L. Gerald Bursey, Political Science Dept. (College of Arts and Sciences) (437-2796)

Program Adviser: Prof. Robert Gilbert, Chairman, Political Science Dept. (College of Arts and Sciences) (437-2796)

PSY: Psychology

Consultant/Program Adviser: Prof. Charles Karis, Psychology Dept. (College of Arts and Sciences) (437-3076)

Associate Consultant: Prof. Harold Zamansky, Psychology Dept. (College of Arts and Sciences) (437-3076)

SOA: Anthropology and SOC: Sociology

Consultant: Prof. Eva C. Havas, Sociology Dept. (College of Arts and Sciences) (437-2686)

Program Adviser/Associate Consultant: Prof. Elliot Krause, Sociology Dept. (College of Arts and Sciences) (437-2686)

SPC: Speech Communication

Consultant: Prof. Michael L. Woodnick, Speech Communications Dept. (College of Arts and Sciences) (437-5517)

TCC: Technical Communications

Consultant: Neil F. Duane (Boston Documentation Design) (965-5300)

Arts and Sciences Associate in Science Degree (Major Code 372)

Core Courses			quarter hours
ENG 4110	ENG 4111	Critical Writing 1, 2	6
ENG 4112		Approaches to Literature	3
Major Concentration Courses			
Humanities (ART, ASL, DRA, ENG, JRN, LIB, LN, MUS, PHL, SPC, TCC)			24
Math-Science (BIO, CHM, ESC, MTH, PHY, PSY Labs)			18
Social Sciences (ECN, HST, POL, PSY, SOA, SOC)			24
Electives			21
Total Quarter Hours			96

Economics Bachelor of Arts Degree (Major Code 390)

Core Courses			quarter hours	
ENG 4110	ENG 4111	Critical Writing 1, 2	6	
ENG 4112		Approaches to Literature	3	
Modern Language		Elementary or Conversational	12	
		Intermediate	12	
Humanities (ART, ASL, DRA, ENG, JRN, LIB, LNA to LNS, MUS, PHL, SPC, TCC)			24	
Math-Science (BIO, CHM, ESC, MTH, PHY, PSY Labs)			18	
Social Sciences (HST, POL, PSY, SOA, SOC)			18	
Major Concentration Courses				
ECN 4115	ECN 4116	ECN 4117	Economic Principles and Problems 1, 2, 3	9
ECN 4250	ECN 4251	ECN 4252	Statistics 1, 2, 3	9
ECN 4310			Labor Economics	3
ECN 4342	ECN 4343		Money and Banking 1, 2	6
ECN 4344			Government Finance	3
Electives				
Economics (Advanced)			27	
Open Electives			24	
Total Quarter Hours			174	

Economics**Bachelor of Science Degree with Certificate in Finance (Major Code 390)****Core Courses**

quarter hours

ENG 4110	ENG 4111	Critical Writing 1, 2	6
ENG 4112		Approaches to Literature	3
Social Sciences (HST, POL, PSY, SOA, SOC)			18

Major Concentration Courses

ECN 4115	ECN 4116	ECN 4117	Economic Principles and Problems 1, 2, 3	9
ECN 4215			Macroeconomic Theory	3
ECN 4216			Microeconomic Theory	3
ECN 4250	ECN 4251	ECN 4252	Statistics 1, 2, 3	9
ECN 4310			Labor Economics	3
ECN 4342	ECN 4343		Money and Banking 1, 2	6
ECN 4344			Government Finance	3

Finance Certificate Courses

ACC 4101	ACC 4102	ACC 4103	Accounting Principles 1, 2, 3	9
FI 4301			Principles of Finance	3
FI 4302			Financial Management	3
FI 4310			Investment Principles	3
FI 4320			Credit Principles	3
FI 4325			Budgeting and Planning	3

Electives

Economics (Advanced)	21
Liberal Arts	42
Open Electives	24

Total Quarter Hours**174**

English Bachelor of Arts Degree (Major Code 330)

Core Courses		quarter hours
ENG 4110	ENG 4111	Critical Writing 1, 2
ENG 4112		Approaches to Literature
Modern Language		Elementary or Conversational
		Intermediate
Math-Science (BIO, CHM, ESC, MTH, PHY, PSY Labs)		
Social Sciences (ECN, HST, POL, PSY, SOA, SOC)		

Major Concentration Courses

ENG 4120		English Literature: Faith and Humanism	3
ENG 4121		English Literature: Reason and Romanticism	3
ENG 4122		English Literature: Victorians and Moderns	3
ENG 4123		Early American Literature: Faith, Reason, and Nature	3
ENG 4124		American Romantics and American Realists	3
ENG 4125		American Literature: The Modern Temper	3
ENG 4131		God, Gods, and Heroes: The Literature of the Ancient and Medieval Worlds	3
ENG 4132		Man, Reason, and Imagination: Literature from the Renaissance to the Romantic Age	3
ENG 4133		Order and Disorder: Literature of the Moderns	3
ENG 4349	ENG 4350	Expository and Persuasive Writing 1, 2	6
ENG 4352		Expository Communications	3
ENG 4602		Major Figures in Poetry	3
ENG 4603		Major Figures in Fiction	3
ENG 4658		Shakespeare the Dramatist	3

Select one of two concentrations for 27 quarter hours:

I. Literature

Select nine courses from the ENG 4200 or ENG 4600 series in the course descriptions on pages 134–136.

II. Writing

Select six courses from the ENG 4300 or ENG 4500 series in the course descriptions on pages 135–136, and three courses from either the JRN or TCC courses on pages 148–149 and 182–183.

Electives

English	9
Open Electives	18

Total Quarter Hours**174**

English Bachelor of Science Degree (Major Code 330)

Core Courses		quarter hours
ENG 4110	ENG 4111	Critical Writing 1, 2
ENG 4112		Approaches to Literature
Math-Science (BIO, CHM, ESC, MTH, PHY, PSY Labs)		
Social Sciences (ECN, HST, POL, PSY, SOA, SOC)		

Major Concentration Courses

ENG 4120		English Literature: Faith and Humanism	3
ENG 4121		English Literature: Reason and Romanticism	3
ENG 4122		English Literature: Victorians and Moderns	3
ENG 4123		Early American Literature: Faith, Reason, and Nature	3
ENG 4124		American Romantics and American Realists	3
ENG 4125		American Literature: The Modern Temper	3
ENG 4131		God, Gods, and Heroes: The Literature of the Ancient and Medieval Worlds	3
ENG 4132		Man, Reason, and Imagination: Literature from the Renaissance to the Romantic Age	3
ENG 4133		Order and Disorder: Literature of the Moderns	3
ENG 4349	ENG 4350	Expository and Persuasive Writing 1, 2	6
ENG 4352		Expository Communications	3
ENG 4602		Major Figures in Poetry	3
ENG 4603		Major Figures in Fiction	3
ENG 4658		Shakespeare the Dramatist	3

Select one of two concentrations for 27 quarter hours:

I. Literature

Select nine courses from the ENG 4200 or ENG 4600 series in the course descriptions on pages 134–136.

II. Writing

Select six courses from the ENG 4300 or ENG 4500 series in the course descriptions on pages 135–136, and three courses from either the JRN or TCC courses on pages 148–149 and 182–183.

Electives

English	9
Open Electives	42

Total Quarter Hours **174**

Fine Arts Bachelor of Arts Degree (Major Code 327)

Core Courses			quarter hours
ENG 4110	ENG 4111	Critical Writing I, 2	6
ENG 4112		Approaches to Literature	3
Modern Language		Elementary or Conversational	12
		Intermediate	12
Math-Science (BIO, CHM, ESC, MTH, PHY, PSY Labs)			18
Social Sciences (ECN, HST, POL, PSY, SOA, SOC)			24
Major Concentration Courses			
ART 4100		History of Art	3
ART 4101		History of Art to the Sixteenth Century	3
ART 4102		History of Art to the Twentieth Century	3
ART 4106		Introduction to Art	3
Electives			
Art			39
Open Electives			48
Total Quarter Hours			174

Fine Arts Bachelor of Science Degree (Major Code 327)

Core Courses			quarter hours
ENG 4110	ENG 4111	Critical Writing I, 2	6
ENG 4112		Approaches to Literature	3
Math-Science (BIO, CHM, ESC, MTH, PHY, PSY Labs)			18
Social Sciences (ECN, HST, POL, PSY, SOA, SOC)			24
Major Concentration Courses			
ART 4100		History of Art	3
ART 4101		History of Art to the Sixteenth Century	3
ART 4102		History of Art to the Twentieth Century	3
ART 4106		Introduction to Art	3
Electives			
Art			39
Open Electives			72
Total Quarter Hours			174

Graphic Design and Visual Communication Associate in Science Degree (Major Code 362)

Core Courses			quarter hours
Communication			
ENG 4110	ENG 4111	Critical Writing I, 2	6
ENG 4112		Approaches to Literature	3
PHL 4100		Philosophical Thinking	3
SPC 4101		Fundamentals of Human Communication	3
Social Sciences			
HST 4101		The Civilization of the Ancient and Medieval Worlds	3
HST 4102		The Civilization of the Early Modern World	3
HST 4103		The Civilization of the Modern World	3
SOC 4100		Fundamental Issues in Sociology	3
SOC 4101		The Individual and Social Roles	3
Business			
MGT 4101		Introduction to Business and Management I	3
MKT 4301		Introduction to Marketing I	3
ACC 4101		Accounting Principles I	3
Major Concentration Courses			
Art/Graphics			
ART 4105		Art through the Ages	3
ART 4110		Modern Art	3
ART 4121		Principles of Drawing and Composition	3
ART 4122		Introduction to Figure Drawing	3
ART 4133		Basic Color and Design	3
ART 4175		History of Graphic Design	3
Graphic Design and Communication Certificate			
ART 4140		Graphic Communication and Production	3
JRN 4349		Advertising Basics	3
ART 4150		Graphic Design: Tools and Techniques	3
ART 4151		Typography	3
ART 4141	ART 4142	Graphic Design I, 2	6
ART 4143		Advertising Design	3
ART 4366		Promotional and Technical Publications: Design and Production	3
ART 4251		Advanced Graphic Design	3
Electives			
Additional courses in humanities are recommended.			12
Total Quarter Hours			96

Graphic Design and Visual Communication Associate in Science Degree (Major Code 362)

quarter hours

Credits from Associate in Science degree in graphic design and communication 96

Core Courses

Business Communication and Research

ENG 4380	ENG 4381	Business Writing and Reports 1, 2	6
LIB 4325		Business Research Tools	3
SPC 4251		Business and Professional Speaking	3
ECN 4115		Economic Principles and Problems I	3
MGT 4324		Essentials for Managers of Small Businesses	2

Computer, Math, Science

COM 4101		Foundations of Computer Literacy	3
MTH 4110	MTH 4111	MTH 4112	Mathematics 1, 2, 3

Select one of the following pairs:

BIO 4103	BIO 4104	Biology 1, 2	(6)
or		or	
CHM 4111	CHM 4112	General Chemistry 1, 2	(6)
or		or	
ESC 4100	ESC 4101	Earth Science 1, 2	(6)
or		or	
PHY 4104	PHY 4105	General Physics 1, 2	(6)

Major Concentration Courses

ART 4176	International Directions in Design	3
ART 4160	Basic Photography	3
ART 4367	Illustration	3
ART 4368	Graphic Design for Media	3
ART 4181	Introduction to Computer-Aided Graphic Design	3
ART 4182	Computer-Aided Graphic Design Workshop	3
ART 4183	Electronic Imaging Systems Practicum	3
ART 4500	Senior Project	4
ART 4501	Portfolio Development	3

Electives

Physics and additional courses in humanities are recommended. 13–15

Total Quarter Hours

174–176

History Bachelor of Arts Degree (Major Code 323)**Core Courses**

quarter hours

ENG 4110	ENG 4111	Critical Writing 1, 2	6
ENG 4112		Approaches to Literature	3
Modern Language		Elementary or Conversational	12
		Intermediate	12
Humanities (ART, ASL, DRA, ENG, JRN, LIB, LN, MUS, PHL, SPC, TCC)			24
Math-Science (BIO, CHM, ESC, MTH, PHY, PSY Labs)			18
Social Sciences (in three of the following areas: ECN, POL, PSY, SOA, SOC)			18

Major Concentration Courses

HST 4101	The Civilization of the Ancient and Medieval Worlds	3
HST 4102	The Civilization of the Early Modern World	3
HST 4103	The Civilization of the Modern World	3
HST 4201	American History 1763–1848	3
HST 4202	American History 1848–1917	3
HST 4203	American History since 1917	3
HST 4241	The Historian's Craft	3
HST 4304	History of Energy	3
HST 4407	Ancient Greece	3
HST 4425	Europe since 1921	3
HST 4443	European Intellectual History since 1815	3
HST 4502	Colonial America	3
HST 4540	American Social History	3
HST 4611	Africa since 1885	3
HST 4632	China since 1850	3

Electives

36

Total Quarter Hours**174**

History Bachelor of Science Degree (Major Code 323)

Core Courses				quarter hours
ENG 4110	ENG 4111	Critical Writing 1, 2		6
ENG 4112	Approaches to Literature			3
MIS 4101	MIS 4102	Introduction to Data Processing and Information Systems 1, 2		6
SOC 4321	SOC 4322	SOC 4323	Social Research Methods 1, 2, 3	12
Humanities (ART, ASL, DRA, ENG, JRN, LIB, LN, MUS, PHL, SPC, TCC)				24
Social Sciences				18

Select two sequences of three courses from the following:

ECN 4115	ECN 4116	ECN 4117	Economic Principles and Problems I, 2, 3	(9)
POL 4103	Introduction to Politics			(3)
POL 4104	Introduction to American Government			(3)
POL 4105	Introduction to Comparative Politics			(3)
PSY 4110	Fundamental Issues in Psychology			(3)
PSY 4111	Developmental Aspects in Psychology			(3)
PSY 4112	Personal Dynamics in Psychology			(3)
SOA 4100	Physical Anthropology			(3)
SOA 4101	Cultural Anthropology: Preliterary Societies			(3)
SOA 4102	Cultural Anthropology: Industrial Societies			(3)
SOC 4100	Fundamental Issues in Sociology			(3)
SOC 4101	The Individual and Social Roles			(3)
SOC 4102	Critical Issues Facing Society			(3)

Major Concentration Courses

HST 4101	The Civilization of the Ancient and Medieval Worlds	3
HST 4102	The Civilization of the Early Modern World	3
HST 4103	The Civilization of the Modern World	3
HST 4201	American History 1764–1848	3
HST 4202	American History 1848–1917	3
HST 4203	American History since 1917	3

Continued

Major Concentration Courses (Cont.)

HST 4241	The Historian's Craft	3
HST 4301	Technological Transformation of Society	3
HST 4304	History of Energy	3
HST 4407	Ancient Greece	3
HST 4425	Europe since 1921	3
HST 4265	Introduction to Public History	3
HST 4443	European Intellectual History since 1815	3
HST 4502	Colonial America	3
HST 4530	American Economic History	3
HST 4540	American Social History	3
HST 4611	Africa since 1885	3
HST 4632	China since 1850	3

Electives (preferably other than history)	51
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Total Quarter Hours	174
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Bachelor of Arts in Liberal Studies Degree (Major Code 495)**Core Courses**

quarter hours

Communication and Critical Thinking

ENG 4110	ENG 4111	Critical Writing 1, 2	6
ENG 4112		Approaches to Literature	3
INT 4200		The Creative Process	3
PHL 4100		Philosophical Thinking	3
PHL 4105		Philosophy of Knowing and Reality	3
PHL 4200		Logic	3
SPC 4101	SPC 4102	Effective Communication 1, 2	6
SPC 4251		Business and Professional Speaking	3

Cultural Heritage

ART 4105		Art through the Ages	3
ECN 4137		History of Economic Thought	3
ENG 4131		God, Gods, and Heroes: Literature of the Ancient and Medieval Worlds	3
ENG 4132		Man, Reason, and Imagination: Literature from the Renaissance to the Romantic Age	3
ENG 4133		Order and Disorder: Literature of the Moderns	3
HST 4101		The Civilization of the Ancient and Medieval Worlds	3
HST 4102		The Civilization of the Early Modern World	3
HST 4103		The Civilization of the Modern World	3
MUS 4120		History of Musical Styles	3
POL 4110		The Great Political Thinkers	3
INT 4201		Cultural Heritage Seminar	3

Science, Research, and Quantitative Methods

CHM 4105			Chemistry and the Environment	3
ECN 4250	ECN 4251		Statistics 1, 2	6
ESC 4650			History of Ancient Sciences and Technologies	3
ESC 4651			History of Modern Sciences and Technologies	3
LIB 4310			Critical Research Tools	3
MIS 4101	MIS 4102		Introduction to Data Processing and Information Systems 1, 2	6
MTH 4110	MTH 4111	MTH 4112	Mathematics 1, 2, 3	9

Continued

Contemporary Studies

ECN 4115	ECN 4116	Economic Principles and Problems I, 2	6
ECN 4334		Comparative Economic Systems	3
POL 4105		Introduction to Comparative Politics	3
PSY 4110		Fundamental Issues in Psychology	3
PSY 4111		Developmental Aspects in Psychology	3
SOA 4155		Individual and Culture	3
SOC 4100		Fundamental Issues in Sociology	3
SOC 4101		The Individual and Social Roles	3
SOC 4102		Critical Issues Facing Society	3
INT 4202		Contemporary Studies Seminar	3

Electives

45

Electives may be used:

- to take a University College certificate program
- to study a modern language or other area in greater depth
- in areas of personal or career interest

Students are encouraged to make an appointment with a University College counselor for help in selecting electives. Call 617-437-2400 for an appointment.

Total Quarter Hours**174**

Music Bachelor of Arts Degree (Major Code 328)

Core Courses				quarter hours
ENG 4110	ENG 4111		Critical Writing 1, 2	6
ENG 4112			Approaches to Literature	3
Modern Language			Elementary or Conversational	12
			Intermediate	12
Math-Science (BIO, CHM, ESC, MTH, PHY, PSY Labs)				18
Social Sciences (ECN, HST, POL, PSY, SOA, SOC)				24
Major Concentration Courses				
MUS 4120			History of Musical Styles	3
MUS 4121			Medieval and Renaissance Music	3
MUS 4122			Music of the Baroque	3
MUS 4123			Music History of the Classical Period	3
MUS 4124			Music History of the Romantic Era	3
MUS 4125			Music History of the Twentieth Century	3
MUS 4201	MUS 4202	MUS 4203	Music Theory 1, 2, 3	12
MUS 4241			Piano Class I	3
MUS 4254	MUS 4255	MUS 4256	Music Tutorial 1, 2, 3	9
MUS 4301			Form and Analysis	3
Electives				
Music				15
Open Electives				39
Total Quarter Hours				174

Music Bachelor of Science Degree (Major Code 328)**Core Courses**

quarter hours

ENG 4110	ENG 4111	Critical Writing 1, 2	6
ENG 4112		Approaches to Literature	3
Math-Science (BIO, CHM, ESC, MTH, PHY, PSY Labs)			18
Social Sciences (ECN, HST, POL, PSY, SOA, SOC)			24

Major Concentration Courses

MUS 4120			History of Musical Styles	3
MUS 4121			Medieval and Renaissance Music	3
MUS 4122			Music of the Baroque	3
MUS 4123			Music History of the Classical Period	3
MUS 4124			Music History of the Romantic Era	3
MUS 4125			Music History of the Twentieth Century	3
MUS 4201	MUS 4202	MUS 4203	Music Theory I, 2, 3	12
MUS 4241			Piano Class I	3
MUS 4254	MUS 4255	MUS 4256	Music Tutorial I, 2, 3	9
MUS 4301			Form and Analysis	3

Electives

Music	15
Humanities (ART, ASL, DRA, ENG, JRN, LIB, LN, PHL, SPC, TCC)	15
Open Electives	48

Total Quarter Hours**174**

Political Science Bachelor of Arts Degree (Major Code 322)

Core Courses		quarter hours
ENG 4110	ENG 4111	Critical Writing I, 2
ENG 4112		Approaches to Literature
Modern Language		Elementary or Conversational
		Intermediate
Humanities (ART, ASL, DRA, ENG, JRN, LIB, LN, MUS, PHL, SPC, TCC)		24
Math-Science (BIO, CHM, ESC, MTH, PHY, PSY Labs)		18
Social Sciences (in three of the following areas: ECN, HST, PSY, SOA, SOC)		18

Major Concentration Courses

POL 4103	Introduction to Politics	3
POL 4104	Introduction to American Government	3
POL 4105	Introduction to Comparative Politics	3
POL 4331	International Relations	3
POL 4370	Introduction to Political Theory	3

American Government*Select three of the following:*

POL 4310	American Political Thought	(3)
POL 4313	State and Local Government	(3)
POL 4314	Urban and Metropolitan Government	(3)
POL 4318	The American Presidency	(3)
POL 4319	The Legislative Process	(3)
POL 4320	American Constitutional Law	(3)
POL 4321	Civil Liberties	(3)
POL 4322	Procedural Due Process	(3)

Comparative Government*Select two of the following:*

POL 4330	Comparative Politics	(3)
POL 4338	European Political Parties	(3)
POL 4339	Government and Politics in the Soviet Union	(3)
POL 4342	Communism in Eastern Europe	(3)
POL 4350	Politics and Policies of the Developing Nations	(3)
POL 4352	Government and Politics of Latin America	(3)
POL 4356	Government and Politics of Northern Africa	(3)
POL 4357	Government and Politics of Sub-Saharan Africa	(3)
POL 4359	Government and Politics in the Middle East	(3)
POL 4362	Government and Politics of Southeast Asia	(3)
POL 4365	Government and Politics of China	(3)
POL 4367	Government and Politics of Japan	(3)

Continued

International Relations*Select one of the following:*

POL 4332	International Organization	(3)
POL 4333	International Law	(3)
POL 4335	Formulating American Foreign Policy	(3)
POL 4336	American Foreign Policy	(3)
POL 4341	Soviet Foreign Policy	(3)
POL 4364	China's Foreign Policy	(3)

Theory and Methodology

POL 4371	Contemporary Political Theory	(3)
or	or	
POL 4311	Research Methods	(3)

Electives

Political Science	18
Open Electives	27

Total Quarter Hours	174
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Political Science Bachelor of Science Degree (Major Code 322)

Core Courses				quarter hours
ENG 4110	ENG 4111		Critical Writing 1, 2	6
ENG 4112			Approaches to Literature	3
ECN 4250	ECN 4251	ECN 4252	Statistics 1, 2, 3	(9)
or			or	
MIS 4101	MIS 4102		Introduction to Data Processing and Information Systems 1, 2	(6)
and			and	
MIS 4220			Introduction to COBOL	(3)
Humanities (ART, ASL, DRA, ENG, JRN, LIB, LN, MUS, PHL, SPC, TCC)				12
Social Sciences (in three of the following areas: ECN, HST, PSY, SOA, SOC)				18

Major Concentration Courses

POL 4103	Introduction to Politics	3
POL 4104	Introduction to American Government	3
POL 4105	Introduction to Comparative Politics	3
POL 4331	International Relations	3
POL 4370	Introduction to Political Theory	3

American Government*Select three of the following:*

POL 4310	American Political Thought	(3)
POL 4313	State and Local Government	(3)
POL 4314	Urban and Metropolitan Government	(3)
POL 4318	The American Presidency	(3)
POL 4319	The Legislative Process	(3)
POL 4320	American Constitutional Law	(3)
POL 4321	Civil Liberties	(3)
POL 4322	Procedural Due Process	(3)

Continued

Comparative Government*Select two of the following:*

POL 4330	Comparative Politics	(3)
POL 4338	European Political Parties	(3)
POL 4339	Government and Politics in the Soviet Union	(3)
POL 4342	Communism in Eastern Europe	(3)
POL 4350	Politics and Policies of the Developing Nations	(3)
POL 4352	Government and Politics of Latin America	(3)
POL 4356	Government and Politics of Northern Africa	(3)
POL 4357	Government and Politics of Sub-Saharan Africa	(3)
POL 4359	Government and Politics in the Middle East	(3)
POL 4362	Government and Politics of Southeast Asia	(3)
POL 4365	Government and Politics of China	(3)
POL 4367	Government and Politics of Japan	(3)

International Relations*Select one of the following:*

POL 4332	International Organization	(3)
POL 4333	International Law	(3)
POL 4335	Formulating American Foreign Policy	(3)
POL 4336	American Foreign Policy	(3)
POL 4341	Soviet Foreign Policy	(3)
POL 4364	China's Foreign Policy	(3)

Theory and Methodology

POL 4371	Contemporary Political Theory	(3)
or	or	
POL 4311	Research Methods	(3)

Electives

Political Science	18
Open Electives*	72

Total Quarter Hours**174**

*Students who elect the Public Administration Concentration have only 30 quarter hours of open electives.

Continued

Optional Public Administration Concentration
(open only to B.S. degree candidates)

			quarter hours
POL 4300	POL 4301	Public Administration I, 2	6
POL 4310		American Political Thought	3
POL 4311		Research Methods	3
<i>Select two of the following:</i>			
POL 4303		Public Personnel Administration	(3)
POL 4304		Public Budgeting	(3)
POL 4305		Organizational Theory	(3)
<i>Select seven of the following:</i>			
POL 4306		Public Policy Analysis	(3)
POL 4313		Government and Politics of the State	(3)
POL 4314		Urban Metropolitan Government	(3)
POL 4318		American Presidency	(3)
POL 4320		American Constitutional Law	(3)
POL 4321		Civil Liberties	(3)
POL 4322		Procedural Due Process	(3)
POL 4332		International Organization	(3)
POL 4375		Consumer Advocacy I	(3)
POL 4378		Current Political Issues	(3)
Political Science Elective			3
Total Quarter Hours			42

Psychology Bachelor of Arts Degree (Major Code 319)

Core Courses				quarter hours
ENG 4110	ENG 4111		Critical Writing 1, 2	6
ENG 4112			Approaches to Literature	3
Modern Language			Elementary or Conversational	12
			Intermediate	12
Humanities (ART, ASL, DRA, ENG, JRN, LIB, LN, MUS, PHL, SPC, TCC)				24
Math-Science (BIO, CHM, ESC, MTH, PHY, PSY Labs)				18
Social Sciences (in three of the following areas: ECN, HST, POL, SOA, SOC)				18
Major Concentration Courses				
PSY 4110			Fundamental Issues in Psychology	3
PSY 4111			Developmental Aspects of Psychology	3
PSY 4112			Personal Dynamics in Psychology	3
PSY 4220	PSY 4221	PSY 4222	Statistics in Psychology 1, 2, 3	9
PSY 4611			Senior Seminar	3
Select three of the following pairs:				
PSY 4231	PSY 4531		Psychology of Learning 1, 2 (Lab)	(6)
PSY 4272	PSY 4572		Personality 1, 2 (Lab)	(6)
PSY 4351	PSY 4551		Physiological Psychology 1, 2 (Lab)	(6)
PSY 4381	PSY 4581		Sensation and Perception 1, 2 (Lab)	(6)
Electives				
Psychology				21
Open Electives				21
Total Quarter Hours				174

Psychology Bachelor of Science Degree (Major Code 319)**Core Courses**

quarter hours

ENG 4110	ENG 4111	Critical Writing I, 2	6
ENG 4112		Approaches to Literature	3
Math-Science (BIO, CHM, ESC, MTH, PHY)			30

Major Concentration Courses

PSY 4110			Fundamental Issues in Psychology	3
PSY 4111			Developmental Aspects in Psychology	3
PSY 4112			Personal Dynamics in Psychology	3
PSY 4220	PSY 4221	PSY 4222	Statistics in Psychology 1, 2, 3	9
PSY 4231	PSY 4531		Psychology of Learning 1, 2	6
PSY 4272	PSY 4572		Personality 1, 2	6
PSY 4351	PSY 4551		Physiological Psychology 1, 2	6
PSY 4381	PSY 4581		Sensation and Perception 1, 2	6
PSY 4611			Senior Seminar	3

Electives

Psychology	15
Open Electives	75

Total Quarter Hours**174**

Sociology-Anthropology Bachelor of Arts Degree (Major Code 321)
Core Courses

quarter hours

ENG 4110	ENG 4111	Critical Writing 1, 2	6
ENG 4112		Approaches to Literature	3
Modern Language		Elementary or Conversational	12
		Intermediate	12
Humanities (ART, ASL, DRA, ENG, JRN, LIB, LN, MUS, PHL, SPC, TCC)			24
Math-Science (BIO, CHM, ESC, MTH, PHY, PSY Labs)			18
Social Sciences (in three of the following areas: ECN, HST, POL, PSY)			18

Major Concentration Courses

SOA 4100			Physical Anthropology	3
SOA 4101			Cultural Anthropology: Preliterate Societies	3
SOA 4102			Cultural Anthropology: Industrial Societies	3
SOC 4100			Fundamental Issues in Sociology	3
SOC 4101			The Individual and Social Roles	3
SOC 4102			Critical Issues Facing Society	3
SOC 4300	SOC 4301	SOC 4302	Social Theory 1, 2, 3	9
SOC 4321	SOC 4322	SOC 4323	Social Research Methods 1, 2, 3	12

Electives

Sociology-Anthropology (at least 9 quarter hours in SOA)	21
Open Electives	21

Total Quarter Hours
174

Sociology-Anthropology Bachelor of Science Degree (Major Code 321)**Core Courses**

quarter hours

ENG 4110	ENG 4111	Critical Writing 1, 2	6
ENG 4112		Approaches to Literature	3
Social Sciences (ECN, HST, POL, PSY)			18

Major Concentration Courses

SOA 4100			Physical Anthropology	3
SOA 4101			Cultural Anthropology: Preliterate Societies	3
SOA 4102			Cultural Anthropology: Industrial Societies	3
SOC 4100			Fundamental Issues in Sociology	3
SOC 4101			The Individual and Social Roles	3
SOC 4102			Critical Issues Facing Society	3
SOC 4300	SOC 4301	SOC 4302	Social Theory 1, 2, 3	9
SOC 4321	SOC 4322	SOC 4323	Social Research Methods 1, 2, 3	12

Electives

Sociology-Anthropology (at least 9 quarter hours in SOA)	39
Open Electives (preferably in the humanities and math-science)*	69

Total Quarter Hours**174**

*Students who elect the Human Services concentration have only 40 quarter hours of open electives.

Human Services Elective Concentration (open only to B.S. degree candidates)

quarter hours

SOC 4125			Social Problems	3
SOC 4240			Sociology of Human Service Organizations	3
SOC 4241			Human Service Professions	3
SOC 4245			Poverty and Inequality	3
SOC 4260	SOC 4261	SOC 4262	Introduction to Social Work Practice 1, 2, 3	9
PSY 4110			Fundamental Issues in Psychology	3
PSY 4111			Developmental Aspects in Psychology	3
PSY 4112			Personal Dynamics in Psychology	3
PSY 4372	PSY 4373	PSY 4374	Abnormal Psychology 1, 2, 3	9

Total Quarter Hours**39***Continued*

Recommended Electives for Human Services Concentration Students:

ECN 4130	Medical Economics	3
ECN 4311	Human Resource Planning	3
ECN 4315	Income Inequality and Discrimination	3
POL 4300 POL 4301	Public Administration I, 2	6
POL 4306	Public Policy Analysis	3
POL 4321	Civil Liberties	3
PSY 4240	Development: Infancy and Childhood	3
PSY 4241	Development: Adolescence	3
PSY 4242	Development: Adulthood and Aging	3
PSY 4272	Personality I	3
SOC 4170	Race and Ethnic Relations	3
SOC 4185	Sociology of Deviant Behavior	3
SOC 4186	Social Control	3
SOC 4190	Juvenile Delinquency	3
SOC 4215	Medical Sociology	3
SOC 4220	Sociology of Mental Health	3
SOC 4225	Social Gerontology	3

Technical Communications Bachelor of Science Degree (Major Code 380)

quarter hours

Advanced Standing Credit, including ENG 4110, ENG 4111, ENG 4112 or their equivalents 82**Core Courses****Basic Communication**

ART 4140		Graphic Communication and Production	3
PHL 4100		Philosophical Thinking	3
PHL 4200		Logic	3
ENG 4349	ENG 4350	Expository and Persuasive Writing I, 2	6
JRN 4112		Fundamentals of Newswriting	3
LIB 4325		Business Research Tools	3
SPC 4152		Interviewing	3

Technology

MIS 4101	MIS 4102	Introduction to Data Processing and Information Systems I, 2	6
MTH 4081	MTH 4082	Introduction to Math I, 2	8
MTH 4083		Applied Math and Statistics	3
TCC 4350	TCC 4351	Concepts of Modern Technology I, 2	6
TCC 4353		Modern Electronics	3

Select one of the following:

MIS 4220		Introduction to Programming in COBOL	(3)
MIS 4240		Introduction to Programming in BASIC	(3)
MIS 4250		FORTRAN Programming I	(3)
MIS 4270		PASCAL Programming I	(3)

Major Concentration Courses

TCC 4101	TCC 4102	Technical Writing I, 2	6
TCC 4105		Editing for Science and Technology	3

Select four of the following:

TCC 4110		Technical Promotional Writing	(3)
TCC 4301	TCC 4302	Computer Software Technical Writing I, 2	(6)
TCC 4311	TCC 4312	Instruction Manual Writing I, 2	(6)
TCC 4320		Proposal Writing	(3)
TCC 4330		The Business and Technical Presentation	(3)

Professional Experience Program

An option for eligible students; call 617-437-2428 for details.

6

Continued

Electives

12

The following electives are recommended:

ACC 4101	ACC 4102	Accounting Principles 1, 2	(6)
ART 4366		Promotional and Technical Publications: Design and Production	(3)
ENG 4352		Expository Communications	(3)
MGT 4101	MGT 4102	Introduction to Business and Management 1, 2	(6)

Total Quarter Hours**174**

Program for Alternative Freshmen

Program Goals

Students in the Alternative Freshman-Year Program are considered regular students and are degree candidates with an undeclared major. The Alternative Freshman-Year Program is specifically designed to help students strengthen their basic academic skills in writing and mathematics. While helping them gain confidence in their ability to do college-level work, the program also offers students an opportunity to consider several different areas of study before committing themselves to a specific major. Through the combination of a carefully prescribed curriculum and the attention of professional counselors, each student is helped to establish a program suited to his or her individual needs. These same counselors are normally available on a continuing basis throughout the student's entire freshman year.

Program Structure

Students in the Alternative Freshman-Year Program begin with 12 to 16 quarter hours of credit in their first academic quarter. In their second and third quarters, students in most tracks accelerate their schedules to take 16 quarter hours of credit per quarter. Students in the health science track take 17 quarter hours in their second quarter and 13 quarter hours in their third quarter.

After completing the prescribed Alternative Freshman-Year Program and achieving both a cumulative quality-point average of 1.400 or better and specific program requirements as noted, students may generally continue their degree programs within University College or transfer, with sophomore status, to any program in the

College of Business Administration or the College of Criminal Justice as well as certain non-science programs in the Boston-Bouvé College of Human Development Professions and the College of Arts and Sciences. In addition to the cumulative quality-point average of 1.400 or better, the College of Business Administration requires a 1.800 average in four key courses, namely, MTH 1113, ENG 4014, ECN 4601, and MGT 4110. Additional program requirements for students who would like to be admitted to sophomore status in the College of Pharmacy and Allied Health Professions are listed in the *Student Handbook for Basic Colleges*.

Faculty and Resources

The University has carefully selected for the Alternative Freshman-Year Program faculty members who are aware of individual student goals as well as the needs of students working to adjust to a college program. Faculty and students meet in small classes of not more than 25 students.

As members of the program, students are considered regular Northeastern University day students even though they have unique schedules and a distinctively tailored curriculum. Therefore, they generally have access to all counseling services, physical education facilities, dormitory arrangements, and extracurricular programs at the University's main campus in Boston.

Alternative Freshman-Year students are encouraged to make extensive use of the up-to-date programmed learning resources available for self-instruction through Northeastern's Learning Resources Center on the Boston campus. For additional assistance, Alternative Freshmen are also frequently referred to the Academic Assistance Center and/or the Math/Writing Center on the Boston campus. A third and very important resource, the Counseling and Testing Center, is also available to students on both the Boston and Burlington campuses for personal and academic counseling as well as for vocational testing and counseling.

Tuition and Fees

Tuition and fees for the Alternative Freshman-Year Program are the same as for students in the Basic, or Day, Colleges. Payment of the standard tuition during the first three academic quarters of residence entitles students to 48 credit hours of instruction. Thus, those who take the 40 programmed credits are entitled to an 8-quarter-hour tuition adjustment at the regular freshman rate.

Application Procedures

For more information on the Alternative Freshman-Year Program, or to request an application, write or call the Dean of Admissions, Department of Admissions, Northeastern University, 360 Huntington Avenue, Boston, MA 02115, telephone 617-437-2200.

Sample One-Year Program: Business Track

quarter hours		
Quarter 1		
CI 4003	Integrated Language Skills A	4
ENG 4013	Fundamentals of English I	4
MTH 1000	Math 1*	4
HST 4110	History of Civilization A†	(4)
Total Quarter Hours		12-16
Quarter 2		
CI 4004	Integrated Language Skills B	4
ENG 4014	Fundamentals of English 2	4
MTH 1010	Math 2*	4
HST 4110	History of Civilization A (or ECN 4601 Economics I)†	4
Total Quarter Hours		16
Quarter 3		
ECN 4601	Economics I (or Directed Elective)†	4
HST 4111	History of Civilization B	4
MGT 4110	Survey of Business and Management	4
MTH 1113	Mathematics for Business*	4
Total Quarter Hours		16

*Students will be placed in one of three math courses depending on placement test results. Those receiving advanced placement have the option of completing MTH 1114 during freshman year.

†Eligible students may take HST 4110 in the first quarter, followed by ECN 4601 in the second quarter. Most students will take HST 4110 in the second quarter and ECN 4601 in the third quarter.

Sample One-Year Program:
Criminal Justice, Education, Arts and Sciences Track

quarter hours		
Quarter 1		
CI 4003	Integrated Language Skills A	4
ENG 4013	Fundamentals of English I	4
MTH 1000	Math I*	4
HST 4110	History of Civilization A†	(4)
Total Quarter Hours		12-16
Quarter 2		
CI 4004	Integrated Language Skills B	4
ENG 4014	Fundamentals of English 2	4
HST 4110	History of Civilization A†	4
SOC 4010	Sociology I	4
Total Quarter Hours		16
Quarter 3		
HST 4111	History of Civilization B	4
POL 4106	Introduction to Politics	4
SOC 4011	Sociology 2 (or Directed Elective)	4
Directed Elective#		4
Total Quarter Hours		16

*Students will be placed in one of two math levels, depending on placement test results.

† Eligible students may take HST 4110 in the first quarter, followed by an elective in the second quarter. Most students will take HST 4110 in the second quarter.

#The Directed Elective is to be chosen with consideration for the student's intended major.

Sample One-Year Program: Health Sciences Track

quarter hours

Quarter 1

MTH 1010	Math 2	4
ENG 4013	Fundamentals of English I	4
CHM 1110	Pre-Chemistry	5
CI 4001	Integrated Language Skills Development I	2

Total Quarter Hours 15**Quarter 2**

MTH 1106	Fundamentals of Mathematics	4
CHM 1111	General Chemistry I	5
CI 4002	Integrated Language Skills Development 2	2
ENG 4014	Fundamentals of English 2	4

Total Quarter Hours 15**Quarter 3**

BIO 1140	Basic Animal Biology I	4
CHM 1112	General Chemistry 2	5
Directed Elective		4
Directed Elective		4

Total Quarter Hours 17**Quarter 4**

BIO 1141	Basic Animal Biology 2	4
MTH 1107	Functions and Calculus	4
Directed Elective		4

Total Quarter Hours 12



Course Descriptions

Course Descriptions

Not all the courses listed in this bulletin will be offered. A final list of courses to be offered is contained in the *University College Schedule Guide*, which gives the hours, days, and locations of classes. These schedules are issued prior to the fall, winter, spring, and summer quarters.

Abbreviations

- q.h.: quarter hours (credit earned)
- d.: hours required in class per week
- Prereq.: prerequisite

Key to Department Codes

ACC	Accounting
ART	Art and Architecture
ASL	American Sign Language
BIO	Biology
BL	Business Law
CHM	Chemistry
CI	Integrated Language Skills
COM	Computer Literacy
DRA	Drama
ECN	Economics
ENG	English
ESC	Earth Sciences
FI	Finance
HMG	Health Management
HRA	Health Record Administration
HRM	Human Resources Management
HSC	Health Science
HST	History
HTL	Hotel and Restaurant Management
IM	Industrial Management
INT	Interdisciplinary
JRN	Journalism
LEN	Law Enforcement
LIB	Library Science
LNA	Language—Arabic
LNF	Language—French
LNG	Language—German
LNH	Language—Hebrew
LNI	Language—Italian
LNJ	Language—Japanese
LNL	Language—Latin
LNN	Language—Swedish
LNS	Language—Spanish
MGT	Management
MIS	Management Information Systems
MKT	Marketing
MLS	Medical Laboratory Science
MS	Management Science
MTH	Mathematics
MUS	Music
NUR	Nursing
PED	Cardiovascular Health and Exercise
PHL	Philosophy and Religion
POL	Political Science
PSY	Psychology
PUR	Purchasing
RAD	Radiologic Technology
RE	Real Estate
REC	Recreation
SOA	Anthropology
SOC	Sociology
SPC	Speech Communication
TCC	Technical Communications
TRN	Transportation

ACC 4101 Accounting Principles I (3 q.h.)

Study of accounting issues and objectives for proper preparation and interpretation of financial statements. Covers the nature, function, and environment of accounting, the basic accounting model, and the accounting cycle, while emphasizing accounting for service and merchandising businesses. Also covers cash and accounts receivable.

ACC 4102 Accounting Principles 2 (3 q.h.)

Continuation of ACC 4101. Emphasizes issues in financial reporting, valuation, and income measurement. Includes receivables, inventories, plant and equipment, bonds, stockholders' equity, and cash flow. *Prereq.* ACC 4101.

ACC 4103 Accounting Principles 3 (3 q.h.)

Preparation and interpretation of cost accounting information and its use in the managerial decision-making process. Includes ratio analysis, present value, analysis of cost-volume relationships, fixed and variable costs, break-even analysis, job order, process cost, and standard cost systems. *Prereq.* ACC 4102.

ACC 4105 Accounting Principles I and 2 (Intensive) (6 q.h.)

Same as ACC 4101 and ACC 4102.

ACC 4110 Management Control for Nonprofit Organizations (3 q.h.)

Characteristics of management control in nonprofit organizations. Studies input-output measures, pricing, budgeting, and accounting control. For nonaccounting majors. *Prereq.* ACC 4102.

ACC 4120 Essentials of Personal Income Taxation (3 q.h.)

Special course for nonaccounting majors, designed to teach important aspects of personal income taxation on both federal and state levels. Tax laws, tax planning, and the preparation of individual returns are emphasized.

ACC 4301 Intermediate Accounting I (3 q.h.)

Introduction to financial accounting concepts, techniques, and procedures. Areas of intensive treatment are the development and framework of accounting theory, basic financial statements, and cash and receivables. *Prereq.* ACC 4103.

ACC 4302 Intermediate Accounting 2 (3 q.h.)

Continuation of the study of accounting concepts and procedures. Examines in detail inventories, tangible and intangible assets, and depreciation. *Prereq.* ACC 4301.

ACC 4303 Intermediate Accounting 3 (3 q.h.)

Comprehensive examination of stockholders' equity and earnings per share. Other topics include accounting changes and statements of changes in financial position. *Prereq.* ACC 4302.

ACC 4304 Intermediate Accounting 4 (3 q.h.)

In-depth analysis of such topics as deferred income taxes, pensions, leases, and price-level accounting. *Prereq.* ACC 4303.

ACC 4306 Intermediate Accounting I and 2 (Intensive) (6 q.h.)

Same as ACC 4301 and ACC 4302. *Prereq.* ACC 4103.

ACC 4310 Cost Accounting I (3 q.h.)

Foundations of cost accounting, including terminology, purpose, and relationship to financial accounting, and familiarization with product costing systems and their usefulness. *Prereq.* ACC 4103.

ACC 4311 Cost Accounting 2 (3 q.h.)

Budgetary planning and control, with emphasis on the use of cost data for current operations, special decisions, and long-range planning. *Prereq.* ACC 4310.

ACC 4313 Cost Accounting I and 2 (Intensive) (6 q.h.)

Same as ACC 4310 and ACC 4311. *Prereq.* ACC 4103.

ACC 4320 Advanced Accounting I (3 q.h.)

Problems associated with business combinations. Studies the purchase and pooling methods of consolidations. *Prereq.* ACC 4304.

ACC 4321 Advanced Accounting 2 (3 q.h.)

Accounting problems associated with partnerships and multinational corporations. Examines accounting for nonprofit organizations. *Prereq.* ACC 4320.

ACC 4325 Auditing I (3 q.h.)

Auditing concepts and standards relevant to the attest function. Includes the legal and ethical responsibilities of the independent certified public accountant, internal controls, an overview of EDP auditing and sampling, and auditor reports. *Prereq.* ACC 4303.

ACC 4326 Auditing 2 (3 q.h.)

Continued examination of auditing concepts and standards relevant to the attest function. Includes compliance and substantive tests as they relate to specific transaction cycles and the use of EDP and statistical sampling techniques. *Prereq.* ACC 4325.

ACC 4327 Auditing I and 2 (Intensive) (6 q.h.)

Same as ACC 4325 and ACC 4326. *Prereq.* ACC 4303.

ACC 4330 Internal Auditing I (3 q.h.)

How the modern internal audit function reviews and appraises diverse operations. Includes standards for professional practice, codes of ethics, administration of the internal audit department, review of internal controls, development of audit programs, an overview of EDP auditing and sampling, and auditor reports. *Prereq.* ACC 4303.

ACC 4331 Internal Auditing 2 (3 q.h.)

Continued examination of the modern internal audit function. Includes specific audit techniques, such as statistical sampling and the computer as an audit tool; the development of audit programs, workpapers, and reviews; operational audits; and fraud issues. *Prereq.* ACC 4330.

ACC 4340 Federal Income Taxes I (3 q.h.)

Application of federal tax laws to the individual's income, gains, losses, and expenses. Includes study of the individual's special deductions. *Prereq.* ACC 4303.

ACC 4341 Federal Income Taxes 2 (3 q.h.)

Continuation of ACC 4340. Studies specialized tax problems related to the individual, including installment sales and income averaging. *Prereq.* ACC 4340.

ACC 4342 Federal Income Taxes 3 (3 q.h.)

Continuation of ACC 4341. Studies application of federal tax laws to the corporation. Partnerships, trusts, and estate and gift taxes are also examined. *Prereq.* ACC 4341.

ART 4100 History of Art (3 q.h.)

History of Western art from prehistoric times to the end of the Roman Empire. Includes the study of major monuments, artists, and stylistic developments that evolved during the Prehistoric, Primitive, Egyptian, Mesopotamian, Aegean, Greek, and Roman periods. Slide lectures and discussions.

ART 4101 History of Art to the Sixteenth Century (3 q.h.)

History of Western art from the end of the Roman Empire to the late sixteenth century. Includes the study of major monuments, artists, and stylistic developments that evolved during the Early Christian, Byzantine, Early Medieval, Romanesque, Gothic, Early and High Renaissance, and late sixteenth-century Mannerist periods. Slide lectures and discussions.

ART 4102 History of Art to the Twentieth Century (3 q.h.)

History of Western art from the late sixteenth century to the twentieth century. Includes the study of major monuments, artists, and stylistic developments that evolved during the Baroque and Rococo periods, and in nineteenth- and twentieth-century Europe and America. Slide lectures and discussions.

ART 4105 Art through the Ages (3 q.h.)

Concentrated historical survey of Western art from prehistoric cave paintings to the twentieth century. Includes the study of major monuments, artists, and stylistic developments found in the Pre-Classical, Classical, Medieval, Renaissance, and Baroque periods, and in nineteenth- and twentieth-century Europe and America. Slide lectures and discussions.

ART 4106 Introduction to Art (3 q.h.)

Introduction to the language, techniques, aesthetics, and visual styles of painting, sculpture, graphic art, and

architecture. Includes individual and comparative studies of major works of art in each field, discussion of terminology, and historical examination of the social, political, and cultural significance of each art form. Slide lectures and discussions.

ART 4107 Introduction to the Great Museums of Europe (3 q.h.)

Introduction to the great museums of Europe, their settings, and important examples from their collections through a slide-lecture format. Includes the Egyptian Museum, Cairo; the National Museum, Athens; the Uffizzi and Pitti Museums, Florence; the Prado, Madrid; the Louvre, Paris; and the National Gallery, London.

ART 4110 Modern Art (3 q.h.)

Major movements and developments in painting, sculpture, and architecture from the late nineteenth century to the present. Emphasizes changing aesthetic views and the artistic, philosophical, historical, sociological, and political influences shaping those views and the modern movement as a whole. Slide lectures and discussion.

ART 4118 Sculpture Basics (3 q.h.)

Creative, three-dimensional expression in papier-maché, cardboard, castoff, junk, clay, wire, and other materials. Includes a comprehensive examination of the design, dynamics, and energy flow of sculptural works.

ART 4119 Sculpture Experiments (3 q.h.)

A new look at sculpture techniques, including casting, carving, and additive, subtractive, and mixed-media expression.

ART 4120 Sculpture Studio (3 q.h.)

Tools, techniques, and materials used in traditional and nontraditional three-dimensional expression. Creative work in the aesthetics, dynamics, and applications of sculpture for personal enjoyment. Includes class and student-choice projects.

ART 4121 Principles of Drawing and Composition (3 q.h.)

Introduction to the fundamental principles of drawing and composition through formal graphic studies of line, shape, value, form, light, space, pattern, and texture. Stresses the use of pencil, charcoal, conté crayon, and other dry media. Slide lectures and critiques as needed.

ART 4122 Introduction to Figure Drawing (3 q.h.)

Introductory studio course in drawing the human form. Includes basic studies in anatomy, proportion, negative/positive space, contour, gesture, mass, line, composition, and drawing technique. Slide lectures, critiques, and weekly sessions drawing from the model.

ART 4123 Drawing Workshop (3 q.h.)

Introduction to more advanced problems in the analysis of visual language and its creative organization. Emphasizes strengthening drawing techniques and developing a personal style.

ART 4127 Basic Painting (3 q.h.)

Introduction to the fundamentals of painting. Includes formal studio assignments in the study of color, light, pictorial space systems, form, texture, and composition to establish a foundation for more individual, creative expression. Critiques and slide lectures as needed.

ART 4128 Intermediate Painting (3 q.h.)

Fundamental principles of painting, followed by more advanced studies in shape, scale, texture, brushstroke, and edge as well as color, light, form, and composition. Examines problems in a variety of stylistic approaches and techniques from the past and the present. Critiques and slide lectures as needed.

ART 4129 Painting Workshop (3 q.h.)

Individual development through a structured, project-oriented approach. Encourages recognition of the conceptual aspects of painting as well as the development of a personal painting style and unique visual imagery. Critiques and slide lectures as needed.

ART 4130 Printmaking: Relief (3 q.h.)

Fundamental course in the production of prints using the relief process. Includes woodcut, linoleum, block-cut, and other relief print techniques. Also explores paper stocks, inks, and carving and printing.

ART 4131 Printmaking: Silkscreen (3 q.h.)

Fundamental course in the production of prints using the stencil process. Includes hand-cut film techniques, brushed paper and blockouts, multicolor printing and registration, selection of inks and papers, and stretching and preparing a screen.

ART 4132 Printmaking: Intaglio (3 q.h.)

Fundamental course in the production of prints using the intaglio process. Includes etching, aquatint, dry point, engraving, sugar-lift, and other intaglio techniques. Focuses on drawing and design skills and on understanding the printmaking craft.

ART 4133 Basic Color and Design (3 q.h.)

Introduction to the principles of design and the science and art of color. Individual projects involve the student in perceiving, simplifying, and organizing basic images as structured form and space and in understanding the nature and properties of color.

ART 4134 Color and Design Practice (3 q.h.)

Intermediate-level problems in the aesthetic organization of color and design elements. Includes expressive possibilities of color orchestration, color harmonies, light as color, and the spatial characteristics of color.

ART 4136 Basic Watercolor Painting (3 q.h.)

Practice and creative expression in the technical fundamentals of watercolor.

ART 4137 Watercolor Painting Practice

(3 q.h.)

Creative expression in various watercolor techniques. *Prereq. ART 4136 or instructor's permission.*

ART 4138 Techniques of Watercolor Painting

(3 q.h.)

Advanced expression in watercolor. *Prereq. ART 4137 or instructor's permission.*

ART 4140 Graphic Communication and Production (3 q.h.)

The design and production process, including an introduction to lithography, screening, color techniques, composition, process camera, paper stocks, bindery methods, and economic factors. Also discusses effective techniques for integrating graphic and written communication.

ART 4141 Graphic Design I (3 q.h.)

Introduction to professional problem solving in graphic design. Includes study and creative work in design principles and their application; color; visual expression; layout concepts, techniques, and tools; design and graphic symbols; creative use of typography; and the integration of graphic forms with content to communicate ideas.

ART 4142 Graphic Design 2 (3 q.h.)

Intermediate study and creative work in professional problem solving in graphic design, with emphasis on creating overall design concepts. Students explore effective problem-solving techniques by taking a variety of projects from concept to finished presentation.

ART 4143 Advertising Design (3 q.h.)

Introduction to the advertising environment and to the language and design problems commonly met in the field. Study and creative work includes advertising layout, design, tools, and techniques; use of color; color printing processes; typography; and preparation of client presentations. Marketing fundamentals are also introduced.

ART 4145 Computer Literacy for the Graphic Designer (3 q.h.)

Introduction to the history, nature, and function of computers, with a special look at electronic imaging systems. Includes the range of computer technology from personal computers to large-scale, turn-key systems; the variety of input and output devices; the advantages and limitations of computers as design tools; and the computer's future impact on graphic communication. Lectures are complemented by hands-on computer sessions. Guest lecturers and field trips. Limited enrollment.

ART 4150 Graphic Design Tools and Techniques (3 q.h.)

Introduction to the variety of tools and tool skills encountered in the graphic design field. Begins with all-purpose tools, such as the T-square and triangle, and proceeds through the use of curves, templates, mechanical drawing instruments, and layout and rendering tools. Emphasizes specific applications from concept development through the finished mechanical. Demonstrations by the instructor and outside specialists.

ART 4151 Typography (3 q.h.)

The evolution of typography and its current applications. Emphasizes understanding basic typographic terms and techniques, acquiring composition skills such as copyfitting and type specification, understanding typography as symbol and as written record, exploring design concepts through typography, and learning the creative potential of new typesetting systems. Includes field trips to view state-of-the-art phototypesetting systems.

ART 4160 Basic Photography (3 q.h.)

Use of the camera, the negative, and the black-and-white print for the beginning student. Includes weekly shooting assignments, demonstrations, and hands-on darkroom experience. (Laboratory fee)

ART 4162 Photography Workshop (3 q.h.)

Through close interaction with the instructor, students may refine their technical skills and learn to make meaningful decisions about their relation to the world through the use of photography. Alternative processes such as infrared, toners, and large format are demonstrated and used. Contemporary trends in photography are illustrated through frequent slide presentations. *Prereq.* ART 4160 or *equiv.* (Laboratory fee)

ART 4163 Introduction to Color Photography (3 q.h.)

Basic color theory and contemporary photographic processes and practices. Students work with color negative materials and print from color slides and negatives. Color printing facilities are provided for student use. Lectures and critiques when appropriate. *Prereq.* ART 4160 or *equiv.* (Laboratory fee)

ART 4171 The American Film: From Arcade to Dream Factory (3 q.h.)

Rise of the American film from the early days of kineoscope peepshows and primitive arcade projections through the 1930s and 1940s and the golden age of Hollywood. Films representing major aesthetic, technical, or industry developments through 1946 are screened and discussed. Lectures, discussions, and assigned readings.

ART 4172 The American Film: Hollywood After Television (3 q.h.)

Development of the American film from the late 1940s to the present. Examines the threat of television, the breakdown of the studio system, the rise of

the independents, and the lateral development of the major studios within entertainment conglomerates. Emphasizes recent activity in American films, including the work of Coppola, Lucas, Spielberg, Allen, Altman, and others. Key recent films are screened and discussed. Lectures, discussions, and assigned readings.

ART 4173 International Directions in Film (3 q.h.)

Comparative study of international film movements since 1950 and their influence on film as an art form. Emphasizes key recent films, major directors, and writers. Includes Italian Neo-Realism (1940s); Polish and Czech postwar films; the French New Wave; the personal cinema of Fellini, Bergman, and others; the American "whiz kids"; New German Cinema; and the Australian school. Lectures, discussions, and assigned readings.

ART 4175 History of Graphic Design (3 q.h.)

Graphic design from the mid-nineteenth century to the present, with references to earlier influences. Focuses on the evolution of the graphic design field, its nature and function, major periods and trends, and the influence of the fine arts. The course concludes with an examination of contemporary directions in design. Slide lectures and discussion.

ART 4176 International Directions in Graphic Design (3 q.h.)

Contemporary theories and practices in international graphic design. Focuses on design activities in such major industrial nations as Germany, Italy, France, England, Canada, Japan, and the United States. Case studies reflecting graphic design solutions to a variety of visual communication problems are examined. Slide lectures and discussion.

ART 4181 Introduction to Computer-Aided Graphic Design (3 q.h.)

Introduction to the terminology, concepts, and applications of computer-aided graphic design. Through lectures, demonstrations, and labs, students explore the range of computer graphics technology from personal computers to large-scale, dedicated, turn-key systems; input and output devices and their applications; the advantages and limitations of computers as design tools; and the future impact of computer graphics on graphic design and communication. Lectures are complemented by hands-on computer sessions. Guest lecturers and field trips. Limited enrollment.

ART 4182 Computer-Aided Graphic Design Workshop (3 q.h.)

An extensive, hands-on workshop that explores the creative potential of computer graphics from free-form design through corporate identity, advertising layout, illustration, package design, electronic publishing, and media design. Also examines special video and film applications. Limited enrollment. *Prereq.* ART 4181 or *equiv.*

ART 4183 Electronic Imaging Systems (3 q.h.)

State-of-the-art imaging systems, including developments in high resolution graphics; full-color, laser-printed reproduction; image enhancement; still and moving image storage and manipulation; large-scale, integrated systems in printing and publishing; and artificially created environments, characters, and actions in television and movies. Recent research in image generation, manipulation, and reproduction is also explored. Guest lecturers, field trips, and video interviews.

ART 4204 Italian Renaissance Art (3 q.h.)

Italian painting, sculpture, and architecture of the fifteenth and sixteenth centuries, with special attention to their historical, cultural, and social contexts. Considers how Renaissance ideals were reflected in the renewed interest in classical harmony and order, and in the growing self-awareness, individualism, and naturalism of the time. Covers such artists as Giotto, Donatello, Botticelli, Michelangelo, da Vinci, Raphael, and Titian.

ART 4207 Chinese Painting (3 q.h.)

Work from the Ch'in and Han dynasties; the period of the Three Kingdoms; the Tang Dynasty; the Five Dynasties; the Northern and Southern Sung; the Yuan, Ming, and Ch'ing Dynasties; and twentieth-century developments.

ART 4208 Japanese Art (3 q.h.)

Development of Japanese painting, sculpture, and architecture from its inception through the twentieth century. Includes work from the Jomon period, the Suiko style, the Tang style (Nara and Early Heian), the Shinto Shrines period, the Later Heian period, the Kamakura period, the Ashikaga period, and the Momoyama period as well as the work of more recent artists such as Hokusai and Hiroshige.

ART 4210 French Painting (3 q.h.)

Development of French painting from the French Revolution through the nineteenth century. Examines Neoclassicism, Romanticism, Realism, Impressionism, and Post-Impressionism, focusing on such figures as David, Delacroix, Courbet, Manet, Degas, Monet, Renoir, Cezanne, and Van Gogh. Also examines the French interest in the formal problems of painting and the painting process as distinct from its narrative content.

ART 4213 Modern Painting (3 q.h.)

Developments in painting from the late nineteenth century through the early 1930s, examining major schools, movements, and artists (such as Van Gogh, Cezanne, and Dalí) from Post-Impressionism through Surrealism. Focuses on important shifts in painting concepts and the rise of innovative modes of expression instrumental in establishing the foundation of Modernism.

ART 4214 Contemporary Painting (3 q.h.)

Developments in painting from the early 1940s to the present, including major schools, movements, and artists. Focuses on the cultural impact of the exodus of artists from Europe to the United States prior to World War II, the meteoric rise of Abstract Expressionism, and the diversity of movements since World War II, such as Pop Art, Minimalism, Conceptual Art, and New Realism.

ART 4217 Latin American Art (3 q.h.)

Development of architecture, sculpture, painting, and the decorative arts in Latin America from the Pre-Columbian period to the present. Includes the classic Maya and Toltec Maya of Central America and Mexico; the Aztecs of Mexico; the Mochica, Masca, Tiahuanaco, Chimu, and Incas of South America; and the rise of national artistic directions in modern Latin America.

ART 4219 American Indian Art (3 q.h.)

American Indian architecture, painting, sculpture, and the minor arts and crafts from Pre-Columbian cultures to the present. Includes the arts of Meso-America, the American Southwest, the Plains, the Northwest Coast, and the Eastern United States. Slide lectures and assigned readings.

ART 4220 American Painting and Sculpture (3 q.h.)

American painting and sculpture from colonial times through the early 1930s. Includes the study of painting from itinerant colonial "limners" through Copley, Benjamin West, and the English tradition; the Hudson River School; Eakins, Hopper, Marin, Stella, and O'Keeffe; and the founding of American Modernist painting. Also examines sculpture from colonial grave-stone reliefs through Rush, Augur, and the public monuments of French, Saint-Gaudens, and Calder.

ART 4221 Women in Art and Women Artists (3 q.h.)

Women in the arts from prehistoric times to the present. Focuses on women as symbols, religious figures, and erotic objects, and on idealized images of femininity. Examples include fertility images, Venus images, madonnas, portraits, and genre works. Also examines the historical role of women as artists.

ART 4223 American Architecture (3 q.h.)

American architecture from the Colonial period through the early 1930s. Includes the seventeenth-century Early American style, the eighteenth-century Georgian style, the Republican style, mid-nineteenth-century Revival styles, the Stick-and-Shingle styles, Richardsonianism, Sullivan and the rise of the skyscraper, and Frank Lloyd Wright.

ART 4228 Twentieth-Century Architecture (3 q.h.)

European and American architecture of the twentieth century. Examines Gropius's Bauhaus tenets concerning housing, urban planning, and utilitarian mass

production; Mies van der Rohe, Le Corbusier, and the International style; Frank Lloyd Wright; and the foundation of American architectural Modernism as exemplified by Neutra, Johnson, Saarinen, and Buckminster Fuller.

ART 4230 History of Photography (3 q.h.)
Developments in photography from the early daguerreotypes to the present. Includes major movements, styles, artists, and significant technological developments. Slide lectures and assigned readings.

ART 4231 Contemporary Photography (3 q.h.)
Evolution of styles and techniques in contemporary photography since World War II. Emphasis is on the variety of image-making techniques and photographic styles and concepts of the last 20 years. Slide lectures and assigned readings.

ART 4251 Advanced Graphic Design (3 q.h.)
Continuation of ART 4142, emphasizing development of effective, professional design skills and personal style.

ART 4311 New York Art Seminar (3 q.h.)
The painting collections in the Metropolitan Museum of Art, Frick Collection, Museum of Modern Art, and the Guggenheim Museum.

ART 4366 Promotional and Technical Publications: Design and Production (3 q.h.)
Design, production, and economics of promotional and technical publications. Using a case-study approach with selected hands-on projects, students explore design and production approaches to a variety of marketing, advertising, and sales-support publications as well as technical service manuals, operating guides, and other documentation. *Not open to students who have taken ART 4364 or ART 4365.*

ART 4367 Illustration (3 q.h.)
Introduction to advertising, medical, and editorial illustration, including illustration for magazines and books. Covers the tools, techniques, and objectives of each. Includes additional work in special categories, such as package illustration, gift trade illustration (greeting cards, wrapping paper, etc.), and architectural and interior illustration. Field trips to illustrators' studios and design offices.

ART 4368 Graphic Design for Media (3 q.h.)
The expanding use of slide-tape, multi-image, and multi-media video and film in areas ranging from public relations and sales to documentary and entertainment presentations. Explores the collaborative role of writers, producers, and art directors in the design and production of media projects, particularly audio-visual projects. Attention is given to the graphic effects possible with state-of-the-art equipment and production techniques unique to video and film.

ART 4500 Senior Project (3 q.h.)
Seniors choose a final major project to demonstrate professional proficiency and originality in a specific

area of design. Finished projects are reviewed by a board of design faculty with the student present to discuss and defend the effectiveness and merit of the project.

ART 4501 Portfolio Development (3 q.h.)
Opportunity for students to select and polish their best design pieces and create a unified, professional portfolio. Concentration is on materials and options available for showing two- and three-dimensional works in one-to-one and group situations. Attention is also given to the design résumé and to interview and presentation skills.

ART 4800 Directed Study I (3 q.h.)
Opportunity for qualified students to take an upper-level required course when the needed course is not available at the time recommended in the degree scheduling sequence. Petitions and procedural instructions are available in the Liberal Arts Program office. Allow at least six weeks to complete the petition process. *Prereq.* 87 q.h.

ART 4801 Directed Study 2 (3 q.h.)
Opportunity to initiate a second individual study as described in ART 4800. *Prereq.* ART 4800.

ART 4810 Honors Program I (4 q.h.)
Independent work in a selected area under the direction of members of the department. *Prereq.* Program Director's approval.

ART 4811 Honors Program 2 (4 q.h.)
Second opportunity to do independent work as described in ART 4810. *Prereq.* ART 4810 and Program Director's approval.

ART 4812 Honors Program 3 (4 q.h.)
Additional opportunity to do independent work as described in ART 4810. *Prereq.* ART 4811 and Program Director's approval.

ASL 4101 American Sign Language I (4 q.h.)
Introduction to American Sign Language, the language used by members of the deaf community in the United States and parts of Canada. Focuses on conversation in signs, basic rules of grammar, and cultural aspects of the deaf community.

ASL 4102 American Sign Language 2 (4 q.h.)
Continuation of basic American Sign Language and culture study, with emphasis on building receptive and expressive sign vocabulary; use of signing space; use of nonmanual components, including facial expressions and body postures; and an introduction to finger spelling. *Prereq.* ASL 4101 or by examination.

ASL 4201 Intermediate American Sign Language I (4 q.h.)
Further development of receptive and expressive skills, finger spelling, vocabulary building, and grammatical structures. Encourages more creative use of expression, classifiers, body postures, and the signing

space. Introduces sign variations (regional and ethnic), and political and educational institutions of the deaf community. *Prereq.* ASL 4102 or by examination.

ASL 4202 Intermediate American Sign Language 2 (4 q.h.)

Intensive practice involving expressive and receptive skills in storytelling and dialogue. Introduces language forms found in ASL poetry and cultural features as they are displayed in art and theatre. *Prereq.* ASL 4201.

ASL 4301 Advanced American Sign Language Proficiency 1 (4 q.h.)

Vocabulary building and mastery of grammar through rigorous receptive and expressive language activities. Includes student-led discussions, debates, and prepared reports on topics in deaf culture, society, and current affairs. *Prereq.* ASL 4202.

ASL 4302 Advanced American Sign Language Proficiency 2 (4 q.h.)

Continuation of ASL 4301. *Prereq.* ASL 4301.

ASL 4410 Linguistics of American Sign Language (3 q.h.)

For skilled ASL signers with no previous training in linguistics. Conducted in ASL, the course is descriptive and data-oriented rather than theoretical. Includes the parts of a sign; building words in ASL; sentence structure (questions, statements, relative clauses, etc.); the meaning and issue of iconicity; organization of sentences according to old and new information; and the structure of stories. Also, grammatical features of ASL, such as classifiers, specifiers, verb modulations and aspects, and the role of facial expression. *Not open to students who have taken ASL 4404.*

ASL 4411 Deaf History (3 q.h.)

The history of deaf people in the Western world, with emphasis on the American deaf community, its language, education, and relation to hearing society. *Not open to students who have taken ASL 4403. Prereq.* ASL 4101 or instructor's permission.

ASL 4412 American Deaf Culture (3 q.h.)

The status of deaf people as both a linguistic and cultural minority group. Designed for individuals who may or may not have had prior experience with deaf people, the course raises questions concerning the nature of sign language and its varieties, the education of deaf people, the historical treatment of deafness, the sociological and cultural makeup of deaf individuals, and the nature of ASL literature and poetry. *Not open to students who have taken ASL 4402.*

ASL 4413 American Sign Language Literature (3 q.h.)

Students read and discuss in ASL various genres of American Sign Language literature. Concentration is on the work of current recognized narrators in both literary and face-to-face storytelling traditions. Includes selected autobiographical sketches, lectures, stories, and letters from the early 1900s by such figures as

Clerc, Veditz, Hotchkiss, Gallaudet, and others. A videotaped research essay is required at the end of the course. *Not open to students who have taken ASL 4401. Prereq.* ASL 4202 or by examination.

ASL 4600 Introduction to Interpreting (formerly ASL 4501 Sign Language Interpreting 1) (3 q.h.)

The interpreting profession, including responsibilities, ethics, and aptitudes of interpreters; professional associations; the law and business of interpreting; the bicultural, bilingual context in which interpreting takes place; basic translation and interpretation; settings; special populations; free-lance versus in-house positions; and evaluation and certification. *Prereq.* ASL 4202 or instructor's permission.

ASL 4601 American Sign Language Interpreting 1 (4 q.h.)

Translations dealing with a variety of styles and registers; techniques for translating different styles, with emphasis on idiomatic expression; and consecutive interpreting. *Prereq.* ASL 4404 or concurrently, ASL 4302 and ASL 4600.

ASL 4602 American Sign Language Interpreting 2 (4 q.h.)

Breakdown of the task of simultaneous interpretation into several phases. Emphasizes divided attention, memory exercises, paraphrasing, and flexibility in English and sign language. *Prereq.* ASL 4601.

ASL 4603 American Sign Language Interpreting 3 (4 q.h.)

Refinement of skills learned in ASL 4602, with emphasis on transliteration. *Prereq.* ASL 4602.

ASL 4604 Special Topics in Interpreting 1 (3 q.h.)

Interpretation for special deaf populations, including the oral, deaf-blind, emotionally, and multiply handicapped. Theory and practice. *Prereq.* ASL 4601.

ASL 4605 Special Topics in Interpreting 2 (3 q.h.)

Interpretation in specific situations, including educational, legal, psychiatric, and medical. Emphasizes work with the intermediary interpreter. *Prereq.* ASL 4601.

ASL 4606 Interpreter Roles and Ethics (3 q.h.)

Discussions, hypothetical situations, and role plays exploring ethical standards and dilemmas in sign language interpreting and in other professions. Also, culturally objective standards, ethics, and professional principles; power versus responsibility; and the RID Code of Ethics. *Prereq.* ASL 4601 and ASL 4402, which may be taken concurrently.

ASL 4607 Interpreting Lab (4 q.h.)

Practice in simultaneous interpreting, with constructive feedback. *Prereq.* ASL 4603.

ASL 4608 Practicum (4 q.h.)

Practical interpreting experience in agencies serving deaf people. Biweekly seminar focuses on linguistic and ethical questions and dilemmas. Requires six hours per week in an agency. *Prereq.* ASL 4603, ASL 4604, ASL 4605, ASL 4606, and ASL 4607.

ASL 4800 American Sign Language Interpreting Seminar (formerly ASL 4507-ASL 4510 American Sign Language Interpreting Seminars) (1 q.h.)

Short-term training opportunities for currently practicing sign language interpreters, scheduled for two Saturdays each fall, winter, and spring quarter. Because the topics or skill areas addressed change from quarter to quarter, students may take this course repeatedly for credit. Limited enrollment. For topic information, call American Sign Language Programs, 617-437-3064 (voice) or 617-437-3067 (TTY).

BIO 4103 Biology I (General) (3 cl., 3 lab., 4 q.h.)

Biology of the cell, including its ultrastructure, function, diversity, genetics, and reproduction. Also examines the molecular composition of cells, including enzymes, chemistry, bioenergetics, respiration, and photosynthesis. *To receive credit for this course, you must also register for BIO 4153, Lab for BIO 4103.* (Laboratory fee)

BIO 4104 Biology 2 (Animal) (3 cl., 3 lab., 4 q.h.)

Functional anatomy of animal organ systems, including locomotion, nutrition, internal transport, gas exchange, molecular regulation, defense systems, nervous and hormonal control, and sensory reception. Also covers ecology, population dynamics, and the origin of life. *To receive credit for this course, you must also register for BIO 4154, Lab for BIO 4104.* *Prereq.* BIO 4103 or equiv. (Laboratory fee)

BIO 4105 Biology 3 (Animal) (3 cl., 3 lab., 4 q.h.)

Systematic comparative study of the diversity of animal life forms, including structure, function, environment, and evolution. *To receive credit for this course, you must also register for BIO 4155, Lab for BIO 4105.* *Prereq.* BIO 4104 or equiv. (Laboratory fee)

BIO 4175 Human Anatomy and Physiology I (2 cl., 2 lab., 3 q.h.)

Introduction to human gross anatomy, including osteology, myology, and angiology of the thorax, abdomen, pelvis, head, and neck. The laboratory generally includes a study of human bones and cat dissection. *The required laboratory is BIO 4195, Lab for BIO 4175.* *Prereq.* BIO 4105 or equiv. (Laboratory fee)

BIO 4176 Human Anatomy and Physiology 2 (2 cl., 2 lab., 3 q.h.)

Anatomy and physiology of the nervous system, endocrine glands, senses, respiratory system, and membranes. The laboratory generally includes gross and microscopic anatomy of the nervous and endocrine systems, and physiology of the nerves, muscles, vision,

hearing, and respiratory system. The required laboratory is BIO 4196, Lab for BIO 4176. *Prereq.* BIO 4175 or equiv. (Laboratory fee)

BIO 4177 Human Anatomy and Physiology 3 (2 cl., 2 lab., 3 q.h.)

Anatomy and physiology of the cardiovascular, digestive, urinary, and reproductive systems; fetal development. The laboratory generally deals with the microscopic anatomy of these systems and the physiology of the blood, heart, and urinary tract. *The required laboratory is BIO 4197, Lab for BIO 4177.* *Prereq.* BIO 4176 or equiv. (Laboratory fee)

BIO 4185 Man and His Biosphere I

(3 cl., 3 q.h.)

Ecological analysis of the human situation and human interaction with other organisms; the necessary foundation of biological principles.

BIO 4186 Man and His Biosphere 2

(3 cl., 3 q.h.)

Continuation of BIO 4185. *Prereq.* BIO 4185 or equiv.

BIO 4190 Microbiology I (2 cl., 3 lab., 3 q.h.)

Morphology and biochemistry of bacteria. *The required laboratory is BIO 4200, Lab for BIO 4190.* *Prereq.* BIO 4105 or equiv. (Laboratory fee)

BIO 4191 Microbiology 2 (2 cl., 3 lab., 3 q.h.)

Survey of pathogenic microorganisms. *The required laboratory is BIO 4201, Lab for BIO 4191.* *Prereq.* BIO 4190 or equiv. (Laboratory fee)

BIO 4192 Microbiology 3 (2 cl., 3 lab., 3 q.h.)

Characteristics and the role of microorganisms in the environment. *The required laboratory is BIO 4202, Lab for BIO 4192.* *Prereq.* BIO 4191 or equiv. (Laboratory fee)

BIO 4224 Ecology I (3 cl., 3 q.h.)

Environmental factors, such as the soil system, water, the atmosphere, temperature, light, wind, and pressure; physico-chemical factors such as CO₂, N, and mineral nutrients; the habitat; and the distribution of plants and animals in the world according to temperature and precipitation. *Prereq.* BIO 4105 or equiv.

BIO 4225 Ecology 2 (3 cl., 3 q.h.)

The ecosystem; ecological niches; producers, consumers, and decomposers; the pond, desert, forest, and seashore ecosystems; energy cycle and efficiency of energy utilization; mass, weight, and energy pyramids. *Prereq.* BIO 4224 or equiv.

BIO 4226 Ecology 3 (3 cl., 3 q.h.)

Population ecology, biotic communities and population growth, relations between the species, symbiosis, competition, predation, and succession. *Prereq.* BIO 4225 or equiv.

BIO 4235 Genetics I (3 cl., 3 q.h.)

Nucleic acid structure, replication of genetic materials, mitosis, meiosis, and Mendelian inheritance. *Prereq.* BIO 4105.

BIO 4236 Genetics 2 (3 cl., 3 q.h.)

Mutation, regulation of gene expression, population genetics, engineering, and genetics of bacteria and viruses. *Prereq.* BIO 4235.

BIO 4237 Genetics Laboratory (4 lab., 2 q.h.)

Laboratory exercises involving principles of Mendelian inheritance, linkage, and crossing-over. Classical genetics utilizing *Drosophila*; biochemical studies utilizing *Neurospora* and *E. coli*. *Prereq.* BIO 4236 or equiv. (Laboratory fee)

BIO 4246 Cell Biology I (3 cl., 3 q.h.)

Chemical composition, structure of cells and organelles, transport processes, cell motion and excitability, and growth. *Prereq.* BIO 4105, BIO 4236, and CHM 4263 or equiv.

BIO 4247 Cell Biology 2 (3 cl., 3 q.h.)

Cellular energy supply, enzyme function, respiration and metabolism, photosynthesis and other synthetic pathways, and control of cellular processes. *Prereq.* BIO 4246 or equiv.

BIO 4248 Cell Biology Laboratory

(4 lab., 2 q.h.)

Laboratory techniques in cell biology, microscopy, structure and chemical composition of cells, enzyme measurements, photosynthesis, respiration, active transport, and growth. *Prereq.* BIO 4247 or equiv. (Laboratory fee)

BIO 4258 Advanced Human Physiology

(3 cl., 3 q.h.)

Study of human physiology emphasizing cellular processes and underlying organ functions and the interactions and control of organ systems. Selected physiological topics are considered as time allows. *Prereq.* BIO 4177 and CHM 4113 or equiv.

BIO 4259 Advanced Human Physiology 2

(3 cl., 3 q.h.)

Continuation of BIO 4258. *Prereq.* BIO 4258.

BIO 4320 Medical Microbiology

(2 cl., 4 lab., 4 q.h.)

Major characteristics of disease-producing organisms. *The required laboratory is BIO 4330, Lab for BIO 4320, which generally meets on a different night. Prereq.* BIO 4192 or professional laboratory experience in bacteriology. (Laboratory fee)

BIO 4350 Histology-Organology I

(1 cl., 2 lab., 2 q.h.)

Morphology of cells and tissues. *The required laboratory is BIO 4360, Lab for BIO 4350. Prereq.* BIO 4105 or equiv. (Laboratory fee)

BIO 4351 Histology-Organology 2

(1 cl., 2 lab., 2 q.h.)

Tissue components of the nervous, integumentary, cardiovascular, urinary, and respiratory systems. *The required laboratory is BIO 4361, Lab for BIO 4351. Prereq.* BIO 4350 or equiv. (Laboratory fee)

BIO 4352 Histology-Organology 3

(1 cl., 2 lab., 2 q.h.)

Tissue components of the digestive and reproductive systems and of the liver and gall bladder. *The required laboratory is BIO 4362, Lab for BIO 4352. Prereq.* BIO 4351 or equiv. (Laboratory fee)

BIO 4441 Parasitology (2.5 cl., 3.25 lab, 4 q.h.)

Parasitic organisms, particularly those affecting humans and domestic animals, and their life cycles, modes of transmission, and diagnosis and treatment. Includes microscopic examination of prepared and live material. *Prereq.* BIO 4103 or instructor's permission.

BIO 4461 Immunology (2 cl., 4 lab., 4 q.h.)

Biological, chemical, and physical attributes of antigens and antibodies, together with their serological interactions. *The required laboratory is BIO 4462, Lab for BIO 4461, which generally meets on a different night. Prereq.* BIO 4192, CHM 4263, or equiv. (Laboratory fee)

BIO 4801 Independent Study in Biology

(4 q.h.)

Students focus on an area of special interest and relevance to their professional goals. Each student is paired with a faculty preceptor, who monitors and evaluates the completed project. Arrangements must be made with the Program Director prior to registering for the course; call 617-437-2818 for details.

BL 4101 Law I (3 q.h.)

Introduction to the legal system. Study of the nature, formation, and essential elements of contracts, including performance and remedies for breach. Also, agency law, including the rights and duties of principal and agent, the scope of authority, and relationships to third persons.

BL 4102 Law 2 (3 q.h.)

Sales as governed by the Uniform Commercial Code, including the law of warranty, business organizations, partnerships, corporations, and other important business forms. *Prereq.* BL 4101.

BL 4103 Law 3 (3 q.h.)

Commercial paper, the function of negotiability, bank checks and promissory notes, real property, personal property, bailments, bankruptcy, and secured transactions. *Prereq.* BL 4102.

BL 4105 Law (Intensive) (6 q.h.)

Same as BL 4101 and BL 4102.

BL 4115 Law and Social Issues (3 q.h.)

Structure and dynamics of the American legal system through analysis of selected cases dealing with social issues.

BL 4120 Law for Personal Planning (3 q.h.)

Legal aspects of personal and family planning, including consumer rights, wills and estate planning, marital law, real estate purchase, tenants' rights, and other selected topics of interest.

CHM 4101 Modern Chemistry I

(2 cl., 2.4 lab., 3 q.h.)

Fundamental ideas of matter and energy, chemical bonding, chemical energy, water and solutions, colloids, ionic reactions, oxidation and reduction, acidity, radioactivity, and air and water pollution. Topics are usually discussed from the viewpoint of recent developments. *The required laboratory is CHM 4107, Lab for CHM 4101.* (Laboratory fee)

CHM 4102 Modern Chemistry 2

(2 cl., 2.4 lab., 3 q.h.)

Classes of organic compounds, including hydrocarbons, alcohols, ethers, aldehydes, ketones, carboxylic acids, esters, amines, amides, and carbohydrates and their relation to modern biology. *The required laboratory is CHM 4108, Lab for CHM 4102.* Prereq. CHM 4101 or equiv. (Laboratory fee)

CHM 4103 Modern Chemistry 3

(2 cl., 2.4 lab., 3 q.h.)

Fats, proteins, enzymes, the chemistry of digestion, and the chemical reactions of body fluids. *The required laboratory is CHM 4109, Lab for CHM 4103.* Prereq. CHM 4102 or equiv. (Laboratory fee)

CHM 4105 Chemistry and the Environment

(3 cl., 3 q.h.)

Fundamental chemical principles, using examples from the geochemical and the internal environments of human beings as well as the home, the farm, and the workplace.

CHM 4110 Chemistry Workshop (3 cl., 0 q.h.)

Discussion and problem-solving session to reinforce and re-examine material covered in CHM 4111, CHM 4112, and CHM 4113. Classes are small and informal and content is programmed according to students' needs.

CHM 4111 General Chemistry I

(2 cl., 2.4 lab., 3 q.h.)

Fundamental chemistry concepts, such as symbols, formulas, equations, atomic weights, and calculations based on equations. Also, gases, liquids, solutions, and ionization. *The required laboratory is CHM 4117, Lab for CHM 4111.* Prereq. MTH 4112 or equiv. (can be taken concurrently). (Laboratory fee)

CHM 4112 General Chemistry 2

(2 cl., 2.4 lab., 3 q.h.)

Atomic structure, bonding, molecular structure, oxidation and reduction reactions, and equilibrium and kinetics. *The required laboratory is CHM 4118, Lab for CHM 4112.* Prereq. CHM 4111 or equiv. (Laboratory fee)

CHM 4113 General Chemistry 3

(2 cl., 2.4 lab., 3 q.h.)

Thermochemistry and electrochemistry, acids, bases, and solubility products, nuclear chemistry, introductory organic chemistry, and biochemistry. *The required laboratory is CHM 4119, Lab for CHM 4113.* Prereq. CHM 4112 or equiv. (Laboratory fee)

CHM 4221 Analytical Chemistry I

(2 cl., 2.4 lab., 3 q.h.)

Principles of gravimetric and titametric analysis (wet chemistry). Introduces statistics as applied to analytical chemistry and examines such topics as chemical equilibrium and acid-base equilibria in simple and complex systems. Gravimetric and titametric experiments are performed. *The required laboratory is CHM 4227, Lab for CHM 4221.* Prereq. CHM 4113 or equiv. (Laboratory fee)

CHM 4222 Analytical Chemistry 2

(2 cl., 2.4 lab., 3 q.h.)

Continuation of CHM 4221, covering complex formation titration, precipitation titrations, and oxidation-reduction titrations. Electrical methods of analysis, such as potentiometry, electrolysis, coulometry, and polarography, are discussed and titametric analyses and experiments involving electricity are performed. *The required laboratory is CHM 4228, Lab for CHM 4222.* Prereq. CHM 4221 or equiv. (Laboratory fee)

CHM 4223 Analytical Chemistry 3

(2 cl., 2.4 lab., 3 q.h.)

Spectrophotometry as a method of analysis, including ultraviolet, visible, infrared, and fluorescence methods; flame emission; and atomic absorption. Solvent extractions and chromatographic methods of separation, such as gas-liquid chromatography and liquid chromatography, are studied. *The required laboratory is CHM 4229, Lab for CHM 4223.* Prereq. CHM 4222 or equiv. (Laboratory fee)

CHM 4224 Analytical Chemistry (Lectures and lab., 4 q.h., summer quarter only)

Principles and theories of volumetric, gravimetric, and instrumental analysis. Application made in the laboratory with analyses of unknown samples. *The required laboratory is CHM 4226, Lab for CHM 4224.* Prereq. CHM 4113 or equiv. (Laboratory fee)

CHM 4261 Organic Chemistry I (2 cl., 4 lab. and discussion, 4 q.h.)

Nature of carbon in organic compounds. General principles of structure, nomenclature, preparation, uses, and reactions of aliphatic hydrocarbons: alkanes, alkenes, alkynes, dienes, cycloalkanes. Position and geometric isomerism. Introduces free radical and ionic mechanisms of reactions. The laboratory generally deals with the preparation and properties of compounds discussed in the lecture. *The required laboratory is CHM 4267, Lab for CHM 4261.* Prereq. CHM 4113 or equiv. (Laboratory fee)

CHM 4262 Organic Chemistry 2 (2 cl., 4 lab.

and discussion, 4 q.h.)

Structure of benzene, electrophilic aromatic substitution reactions. General principles of structure, nomenclature, preparation, uses, and reactions of the various types of organic compounds, including alcohols, alkyl and aryl halides, ethers and epoxides, and carboxylic acids. Optical isomerism and introductory chemical kinetics. The laboratory generally deals with the preparation and properties of compounds discussed. *The required laboratory is CHM 4268, Lab for CHM 4262. Prereq. CHM 4261 or equiv. (Laboratory fee)*

CHM 4263 Organic Chemistry 3 (2 cl., 4 lab.

and discussion, 4 q.h.)

Continuation of CHM 4262, emphasizing the application of chemical conversions to synthetic problems. Functional derivatives of carboxylic acids, sulfonic acids and their derivatives, amines, diazonium compounds, phenols, aldehydes, and ketones. The laboratory generally deals with the preparation and properties of compounds discussed. *The required laboratory is CHM 4269, Lab for CHM 4263. Prereq. CHM 4262 or equiv. (Laboratory fee)*

CHM 4321 Instrumental Analysis I

(3 cl., 3 q.h.)

Basic theory of electrochemistry and electrochemical methods of analysis, including electrode and cell potentials, potentiometric titrations, direct potentiometry (pH meters and specific ion electrodes), coulometry, voltammetry, polarography, electrogravimetry, and conductometric methods. *Prereq. CHM 4223 or equiv. (This course may serve as preparation for certain graduate courses.)*

CHM 4322 Instrumental Analysis 2

(3 cl., 3 q.h.)

Basic theory of absorption and emission spectroscopy, including ultraviolet and visible spectroscopy, molecular fluorescence and phosphorescence, atomic absorption spectroscopy (flame, arc, spark, and plasma), and infrared and X-ray spectroscopy. *Prereq. CHM 4321 or equiv. (This course may serve as preparation for certain graduate courses.)*

CHM 4323 Radiochemistry (3 cl., 3 q.h.)

Basics of radioisotopes, including basic physics; the atomic nucleus; properties and production of radioisotopes; properties of nuclear radiation; dose calculations; ionization chambers; proportional, Geiger-Muller, and crystal and liquid scintillation counters; and the statistics involved in counting radiation. *Prereq. CHM 4322 or equiv.*

CHM 4371 Biochemistry I (3 cl., 3 q.h.)

The first of a three-course sequence. Includes cellular organization, pH buffers, and the biochemistry of amino acids, proteins, enzymes, and vitamins. *Prereq. CHM 4263 or equiv.*

CHM 4372 Biochemistry 2 (3 cl., 3 q.h.)

Biochemistry of carbohydrates, lipids, and nucleic acids; bioenergetics; and the metabolism of carbohydrates. *Prereq. CHM 4371 or equiv.*

CHM 4373 Biochemistry 3 (3 cl., 3 q.h.)

Metabolism of lipids, amino acids, and nucleotides and the biosynthesis of proteins, DNA, and RNA. *Prereq. CHM 4372 or equiv.*

CHM 4381 Physical Chemistry I (3 cl., 3 q.h.)

Thermodynamics, thermochemistry, First and Second Laws, entropy, and free energy in spontaneous processes. *Prereq. CHM 4113 or equiv.*

CHM 4382 Physical Chemistry 2 (3 cl., 3 q.h.)

Chemical equilibria, acids and bases, electrochemistry, colligative properties, phase diagrams, thermodynamics of multicomponent systems, and kinetic molecular theory. *Prereq. CHM 4381 or equiv.*

CHM 4383 Physical Chemistry 3 (3 cl., 3 q.h.)

Kinetics, quantum chemistry, and photochemistry. *Prereq. CHM 4382 or equiv.*

CHM 4801 Independent Study in Chemistry

(3 q.h.)

Chemical-biological technology students focus on areas of special interest and relevance to their professional goals. Each student is paired with a faculty preceptor, who monitors and evaluates the completed project. Arrangements must be made with the Program Director prior to developing the project or registering for the course; call 617-437-2818 for details.

CI 4003 Integrated Language Skills A (4 q.h.)

Designed to help improve reading comprehension, study, and language skills. Covers basic reading comprehension and interpretation; such study skills as previewing, finding main ideas and details, outlining, and summarizing; and the interaction of communications skills, such as reading, writing, listening, and speaking. *For Alternative Freshmen only.*

CI 4004 Integrated Language Skills B (4 q.h.)

Continuation of CI 4003, emphasizing such study skills as researching, writing, and organizing term papers. Explores critical thinking in relation to the learning process. How to choose an academic major and career direction are also addressed, with emphasis on self-assessment and personal decision making. *For Alternative Freshmen only.*

COM 4101 Foundations of Computer Literacy (4 q.h.)

Introduction to computers, including data-base management, word processing, systems analysis and design, software packages, artificial intelligence, and trends in specialized types of office automation. Students have the opportunity to learn to program in BASIC. Hands-on labs reinforce lectures.

DRA 4101 Introduction to Theatre (3 q.h.)

Designed to increase the student's awareness and enjoyment of theatre, with attention to conventional and current forms of drama and their sources in theatre history. How theatre is made and the people who make it—actors, directors, writers and designers—are discussed, as are the nature of the audience and the relationship between theatre and society. Field trips to view theatre works in the Boston area.

DRA 4120 Acting for the Non-Actor (3 q.h.)

How acting training can benefit people in other professions. Discusses stress and relaxation, presentation of self, status in relationships, performance anxiety, and other problems in the context of the theatre. Employs acting exercises to help the student analyze and find methods for dealing with such situations.

DRA 4130 Prizewinning Plays (3 q.h.)

What makes a play win a Pulitzer Prize or a Tony Award? Examination of selected plays that have received one or more of these prizes, and of their production, provides some answers.

DRA 4140 Workshop for the Actor I (3 q.h.)

Physical preparation for the actor, including basic stage movement and deportment, control of the stage voice, analysis and establishment of characterization through observation and awareness of the body, and improvisations and short scenes.

DRA 4141 Workshop for the Actor 2 (3 q.h.)

Psychological preparation for the actor, including analysis and establishment of characterization through memory, emotion, imagination, and recall; analysis of specific roles; the creation of a character analysis book; and improvisations and short scenes. *Prereq.* DRA 4140 or instructor's permission.

DRA 4160 Drama Movement and Therapy (3 q.h.)

Exploration of teaching and rehabilitative methods, using the techniques of creative dramatics and dance/movement therapy. Emphasizes the exceptional child and the physically and emotionally handicapped.

DRA 4170 Creative Dramatics for Teachers (3 q.h.)

Introduction to the methods and creative techniques of using dramatics for programs in schools, churches, and recreational facilities. Teachers can learn how to use improvisation for self-improvement with students of all ages.

DRA 4200 The Comic Theatre (3 q.h.)

The writing and staging of works by Aristophanes, Molière, Shaw, and Neil Simon as well as the nature, function, and technique of comic writing and performance.

DRA 4210 The Shakespeare Experience (3 q.h.)

Seminar designed to give students the opportunity to view and critique live productions and/or motion picture and television versions of plays by William Shakespeare.

DRA 4230 The Boston Theatre Scene (3 q.h.)

Opportunity to view and critique live performances presented in the Boston area's major and "off-Broadway" theatres. Cost of theatre tickets not included in tuition.

DRA 4240 The Creative Cinema (3 q.h.)

Seminar designed to give students an opportunity to view and critique films and the work of directors, performers, and other creative personnel. Cost of cinema tickets not included in tuition.

ECN 4001 Overcoming Statistics Stress (noncredit)

Often the most difficult part of any statistics course is the anxiety involved in taking the course. This seminar is designed to show students how to put aside those anxieties by understanding the components of statistics and developing techniques to simplify seemingly difficult word problems. Mathematical skills needed include addition, subtraction, division, multiplication, knowledge of square roots, and basic algebra.

ECN 4115 Economic Principles and Problems I (3 q.h.)

Application of the basic principles of economics to current public problems. Focusing on macroeconomics, the course discusses national income concepts, unemployment, inflation, national income and employment theory, and government expenditures and taxation.

ECN 4116 Economic Principles and Problems 2 (3 q.h.)

Continuation of ECN 4115, focusing on the role of the banking system, the Federal Reserve system, and supply-side policies. Topics in microeconomics include the role of a market pricing system; supply and demand, the costs of production; profits; and the supply decision. *Prereq.* ECN 4115 or equiv.

ECN 4117 Economic Principles and Problems 3 (3 q.h.)

Continuation of ECN 4116, focusing on markets and the allocation of resources. Topics include competitive markets, monopoly, oligopoly, factor markets, and income distribution. Economic principles are applied to selected problem areas, including poverty, pollution, energy, international trade, and the balance of payments. *Prereq.* ECN 4116 or equiv.

ECN 4118 Economics (Intensive) (9 q.h.)

Same as ECN 4115, ECN 4116, and ECN 4117.

ECN 4130 Medical Economics (3 q.h.)

Health care trends in the United States; causes for increases in medical care costs; supply and training of health care personnel; the nation's need for physicians,

nurses, pharmacists, and other allied health personnel; the quality of medical care; economics of health insurance plans; and consumer demand for health care, medical facilities, and professional and semiprofessional personnel.

ECN 4137 History of Economic Thought

(3 q.h.)

Development of economic thought, including Mercantilism as the first economic doctrine; analysis of the older, classical school with its later refinements (Modern Marginalism) and its important critics (socialists, Marxists); and Keynesian and modern developments.

ECN 4140 Economics of Crime

(3 q.h.)

Theoretical and empirical analyses of the economic causes of criminal behavior. The social costs of crime, its prevention, and techniques for designing optimum law enforcement policies.

ECN 4150 Energy Economics

(3 q.h.)

Economic, political, and historical background of energy and other resource problems, including examination of the future impact of primary resource limitations on U.S. and world economics and feasibility studies of resource substitution.

ECN 4215 Macroeconomic Theory

(3 q.h.)

Conceptual and empirical problems of creating and using national accounts; price index problems; conceptual and empirical evaluation of several consumption and investment functions and their policy implications; and multiplier and accelerator models. Includes a brief history of recent cyclical fluctuations as well as an analysis of inflation and growth theories in light of recent economic history. *Prereq.* ECN 4117 or equiv.

ECN 4216 Microeconomic Theory

(3 q.h.)

Supply and demand analysis, elasticity concepts and applications, theory of consumer demand, theory of production, and derivation of cost curves. Also, pricing and output behavior in the several market structures, their welfare implications, and the pricing of resources. *Prereq.* ECN 4117 or equiv.

ECN 4250 Statistics I

(3 q.h.)

Introduction to the collection and organization of data, including the measurement, presentation, and uses of elementary set theory; measures of central tendency and variability; basic probability; and probability distributions.

ECN 4251 Statistics 2

(3 q.h.)

Sampling and basic estimation techniques, "t" distribution, testing of statistical hypotheses, and analysis of variances. *Prereq.* ECN 4250 or equiv.

ECN 4252 Statistics 3

(3 q.h.)

Methods of econometric estimation and forecasting, including linear regression analysis, correlation analysis, time series analysis, and index numbers. *Prereq.* ECN 4251 or equiv.

ECN 4253 Statistics Intensive A

(formerly Statistics Intensive) (9 q.h.)

Same as ECN 4250, ECN 4251, and ECN 4252.

ECN 4254 Statistics Intensive B

(6 q.h.)

Same as ECN 4250 and ECN 4251.

ECN 4255 Hands-On Statistics

(4 q.h.)

Statistics techniques and applications, including frequency distributions, measures of central tendency, measures of dispersion, probability and probability distributions, and sampling and estimation techniques. Class time is divided equally into lecture and laboratory; the latter focuses on individual, supervised problem solving. *Not open to students who have taken ECN 4250.*

ECN 4310 Labor Economics

(3 q.h.)

Economic analysis of the labor market, including the labor force, the demand for labor, and the institutions and policies dealing with them. Examines employment, unemployment, wage determination, and the development and efficient use of labor resources as well as collective bargaining issues and their economic consequences. *Prereq.* ECN 4117 or equiv.

ECN 4311 Human Resource Planning

(3 q.h.)

Assessment of government and private efforts to fight poverty and improve the labor market position of impoverished groups. Considers the relationship between causes of poverty and discrimination and possible remedies. Also considers training programs, negative income tax, family allowances, and other income maintenance schemes.

ECN 4312 Economic Concerns of Older Adults

(3 q.h.)

Designed to provide a basic knowledge of economic principles as they apply to senior members of the community. Includes how the U.S. economic policies and market system determine the price, quality, and availability of medical care and other allied services.

ECN 4315 Income Inequality and Discrimination

(3 q.h.)

Analysis of the composition of impoverished groups and recent trends. Examines the labor market, demographic and institutional forces contributing to poverty, the role of education, the economics of race and sex discrimination, the public welfare system, and proposed reforms.

ECN 4321 Urban Economic Problems and Policies

(3 q.h.)

Economic analysis of selected urban problems such as housing, poverty, transportation, education, health, crime, and the urban environment. Includes discussion of public policies relating to such problems.

ECN 4322 Economics of Transportation

(3 q.h.)

Transportation and land-use patterns, ownership, regulations, financing, social costs and benefits of various modes of transportation, and economies of new technology.

ECN 4330 Economic Growth and Development (3 q.h.)

Prospects for economic growth and development in impoverished nations as indicated by economic analysis and historical experience. Includes the social, cultural, and institutional determinants of growth and an analysis of agriculture and development.

ECN 4331 American Economic History (3 q.h.)

Economic development of the United States, with emphasis on the post-Civil War period and the effect of certain European developments.

ECN 4333 European Economic Development (3 q.h.)

Historical survey of European economic development from overseas expansion to the dissolution of empires and the Common Market. Examines the environmental impact of industrialism and the implications of living in a technological society.

ECN 4334 Comparative Economic Systems (3 q.h.)

Competing types of theoretical economic systems; analysis of the organization and operation of currently existing types of communist, socialist, and capitalist economies; and comparison and evaluation of the economic behavior and performance of different economic systems.

ECN 4335 International Economics I (3 q.h.)

Economics of international trade, including tariffs, use of resources, and balance-of-payment mechanisms. *Prereq.* ECN 4117 or equiv.

ECN 4336 International Economics 2 (3 q.h.)

International commercial policy, financial organizations, and recent problems. *Prereq.* ECN 4335 or equiv.

ECN 4342 Money and Banking I (3 q.h.)

Introduction to money and credit, commercial banking structure, and money creation as well as the problems and policies of centralized banking in the United States. *Prereq.* ECN 4117 or equiv.

ECN 4343 Money and Banking 2 (3 q.h.)

Theory of money, prices, and monetary policy; interest theory; debt management; and international monetary problems and analysis. *Prereq.* ECN 4342 or equiv.

ECN 4344 Government Finance (3 q.h.)

Fiscal functions, institutions, and politics; growth of the public sector; expenditure planning in theory and practice; cost-benefit analysis; principles of taxation and tax incidence; major taxes at federal, state, and local levels; fiscal policy for high employment, price

stability, and growth; and current fiscal problems, such as tax reform, urban fiscal problems, fiscal federalism, and income maintenance programs. *Prereq.* ECN 4117 or equiv.

ECN 4345 Business Cycles I (3 q.h.)

Intermediate macroeconomic theory, including theory of cyclical fluctuations in the context of multiplier and accelerator models. *Prereq.* ECN 4117 or equiv.

ECN 4346 Business Cycles 2 (3 q.h.)

Business cycle analysis, measurement, and public policy. *Prereq.* ECN 4345 or equiv.

ECN 4347 Business Cycles 3 (3 q.h.)

Business cycle forecasting methods and services. *Prereq.* ECN 4346 or equiv.

ECN 4348 Business Cycles (Intensive) (9 q.h.)

Same as ECN 4345, ECN 4346, and ECN 4347. *Prereq.* ECN 4117 or equiv.

ECN 4350 Introduction to Econometrics (3 q.h.)

Methods of econometric estimation and forecasting, including various statistical techniques. Students are given the opportunity to construct their own models and use computer facilities for estimation and forecasting. *Prereq.* ECN 4117 and ECN 4252.

ECN 4351 Problems in Economic Research (3 q.h.)

Research methods used by practicing economists. Topics include typical problems from areas of applied economics, such as choices of modeling framework, development of static and dynamic adaptive policy models, problems of data collection, review of estimation techniques, and interpretation of results. *Prereq.* ECN 4117 and ECN 4252.

ECN 4353 Introduction to Mathematical Economics (3 q.h.)

Introduction to mathematical analysis, with an in-depth study of theory of distribution. *Prereq.* ECN 4117 or equiv.

ECN 4360 Managerial Economics (3 q.h.)

Theory of demand, price, and output as applied to business firms and capital budgeting. *Prereq.* ECN 4117 or equiv.

ECN 4362 Industrial Organization and Public Policy (3 q.h.)

Theoretical framework for analysis and evaluation of the static and dynamic performance of real markets. Examines empirical studies that test the usefulness of applying theory to real markets and the existence of antitrust laws as a public policy designed to promote better market performance. *Prereq.* ECN 4117 or equiv.

ECN 4363 Government and Business I (3 q.h.)

Role of government in national economic affairs: theory and practice.

ECN 4364 Government and Business 2 (3 q.h.)
Relation between government and business; antitrust laws. *Prereq.* ECN 4363 or *equiv.*

ECN 4365 Government and Business 3 (3 q.h.)
Application of antitrust laws to business, with emphasis on cases, principles, and current antitrust problems. *Prereq.* ECN 4364 or *equiv.*

ECN 4490 Directed Study I (3 q.h.)
Opportunity for qualified students to take an upper-level course in their major on an individual basis. Petitions and procedural instructions are available from the Liberal Arts Program office, 617-437-2416. *Prereq.* 87 q.h.

ECN 4491 Directed Study 2 (3 q.h.)
Opportunity to initiate a second individual study as described in ECN 4490. *Prereq.* ECN 4490.

ECN 4492 Economic Policy Seminar (3 q.h.)
Most advanced course for senior economic majors, with emphasis on independent study and contemporary issues. *Prereq.* ECN 4117 or *equiv.*

ECN 4495 Honors Program I (4 q.h.)
Independent work in a selected area under the direction of members of the department. *Prereq.* Program Director's approval.

ECN 4496 Honors Program 2 (4 q.h.)
Second opportunity to do independent work as described in ECN 4495. *Prereq.* ECN 4495 and Program Director's approval.

ECN 4497 Honors Program 3 (4 q.h.)
Additional opportunity to do independent work as described in ECN 4495. *Prereq.* ECN 4496 and Program Director's approval.

ECN 4601 Economics I (4 q.h.)
Development of macroeconomic analysis; review of national income concepts, national income determination fluctuation and growth, the role of the banking system and the Federal Reserve system, government expenditures and taxation, international trade, and balance of international payments. *For Alternative Freshmen only.*

ENG 4005 English for International Students I (noncredit)
Introduction to the grammar and rhetoric of English as a second language. Practice in listening, speaking, and writing, with selected readings and exercises for improving vocabulary and pronunciation.

ENG 4006 English for International Students 2 (noncredit)
Intermediate course in English as a second language. Practice in preparing written and oral reports, including business and social letters. *Prereq.* ENG 4005 or *equiv.*

ENG 4007 Advanced English for International Students (3 q.h.)
Advanced course in English as a second language. Practice in special forms of writing to improve clarity, syntax, and organization. *Prereq.* ENG 4006 or instructor's permission.

ENG 4011 Elements of Writing (3 q.h.)
Intensive review of the grammatical forms and structural patterns of current English. Practice in writing sentences, paragraphs, and short papers.

ENG 4013 Fundamentals of English I (4 q.h.)
Intensive introduction to the principles of effective expository writing, emphasizing description, paragraph construction, and organization. Includes a review of the conventions of English usage, punctuation, and syntax. Essay assignments. *For Alternative Freshmen only.*

ENG 4014 Fundamentals of English 2 (4 q.h.)
Intensive instruction in exposition, argument, and academic essay and research paper writing, in addition to continued study of the conventions of English usage, punctuation, and syntax. Essay assignments. *For Alternative Freshmen only.* *Prereq.* ENG 4013 or *equiv.*

ENG 4110 Critical Writing I (formerly English I) (3 q.h.)
Detailed examination of the principles and methods of rhetoric, especially narration, description, and exposition. Includes frequent practice in writing paragraphs and themes in those modes. A writing proficiency test is given at the first class meeting.

ENG 4111 Critical Writing 2 (formerly English 2) (3 q.h.)
Continued examination of the principles and methods of rhetoric, especially persuasion and argument, the study of short fiction, and the development of research skills. Includes practice in writing persuasive and critical themes and in preparing research papers. *Prereq.* ENG 4110 or *equiv.*

ENG 4112 Approaches to Literature (formerly English 3) (3 q.h.)
Further refinement of writing and analytical skills through the study of drama and poetry. Practice in writing longer critical papers. *Prereq.* ENG 4111 or *equiv.*

ENG 4120 English Literature: Faith and Humanism (3 q.h.)
English literature from its beginnings to 1700, including works by Chaucer, Spenser, Shakespeare, Donne, and Milton.

ENG 4121 English Literature: Reason and Romanticism (formerly English Literature to 1832) (3 q.h.)
English literature from the Neoclassical period to the Romantic age, including works by Pope, Swift, Johnson, Blake, Wordsworth, and Keats.

ENG 4122 English Literature: Victorians and Moderns (3 q.h.)

English literature from the Victorian Age through the early twentieth century, including works by Browning, Arnold, Hardy, Yeats, and Eliot.

ENG 4123 Early American Literature: Faith, Reason, and Nature (3 q.h.)

American literature from its beginnings through the nineteenth-century Transcendentalists, including works by Bradstreet, Taylor, Edwards, Franklin, Emerson, and Thoreau.

ENG 4124 American Romantics and American Realists (3 q.h.)

The fiction and poetry of nineteenth-century America, including works by Hawthorne, Melville, Whitman, Dickinson, Twain, James, Crane, and Dreiser.

ENG 4125 American Literature: The Modern Temper (3 q.h.)

The prose and poetry of twentieth-century America, including works by Eliot, Stevens, Fitzgerald, Hemingway, Wright, and Plath.

ENG 4131 God, Gods, and Heroes: The Literature of the Ancient and Medieval Worlds (formerly Major Writers of the Western World 1) (3 q.h.)

Literary traditions of the ancient world and the Middle Ages in the work of such writers as Homer, Virgil, Sophocles, Aristophanes, Dante, and Chaucer as well as in the art of biblical narrative.

ENG 4132 Man, Reason, and Imagination: Literature from the Renaissance to the Romantic Age (formerly Major Writers of the Western World 2) (3 q.h.)

Literary traditions of the Renaissance, Neoclassicism, and Romanticism in the work of such writers as Shakespeare, Milton, Voltaire, Racine, Wordsworth, and Whitman.

ENG 4133 Order and Disorder: Literature of the Moderns (formerly Major Writers of the Western World 3) (3 q.h.)

Literary traditions of Realism and Modernism in the work of such writers as Dostoyevsky, Ibsen, Joyce, Kafka, Woolf, and O'Neill.

ENG 4210 Science Fiction (3 q.h.)

Myths and rhetorical strategies of science fiction, including such novels as *Frankenstein*, *Childhood's End*, and *Stranger in a Strange Land*.

ENG 4211 Fantasy Literature (3 q.h.)

Development of fantasy literature in the nineteenth and twentieth centuries, focusing on the works of such authors as Lewis Carroll, Lord Dunsany, Kenneth Grahame, J. R. R. Tolkien, and Richard Adams.

ENG 4212 Horror Fiction (3 q.h.)

Horror literature and its concerns with the supernatural, the irrational, the nature of evil, and the landscape of dreams, including such novels as *Dracula*, *Dr. Jekyll and Mr. Hyde*, and *The Turn of the Screw*.

ENG 4213 Detective Fiction (3 q.h.)

Elements of intrigue, logic, and thought converge in this study of the who-done-it. Students sample a wide range of detective fiction to explore the questions of innocence and guilt, action and responsibility, power and authority, and victim and victimizer, and to see connections between this popular form of literature and its classical antecedents.

ENG 4214 The Psychological Novel (3 q.h.)

Mental and emotional processes affecting the form and style of such works as *Crime and Punishment*, *The Metamorphosis*, and *The Stranger*.

ENG 4220 Children's Literature (3 q.h.)

The psychology of creation, the ways of the imagination, and the role of fantasy and play in such children's books as *Alice in Wonderland*, *The Wizard of Oz*, and *Charlotte's Web*.

ENG 4221 Images of Women in Literature (3 q.h.)

Images of women and their underlying archetypes in imaginative literature. Includes such writers as Homer, Austen, Ibsen, and Lawrence.

ENG 4222 American Women Writers (3 q.h.)

Representative nineteenth- and twentieth-century American women writers, including such poets as Dickinson and Plath and such novelists as Chopin and Cather.

ENG 4223 British Women Writers (3 q.h.)

Important historical and thematic connections in the work of British women writers of the last 200 years, including the novels of Austen, Eliot, Woolf, and Lessing.

ENG 4230 Modern Irish Literature (3 q.h.)

Irish literature in English from 1885 to the present, including such writers as Yeats, Joyce, O'Casey, and Behan.

ENG 4231 Irish Writers in America (3 q.h.)

Irish themes and attitudes in the fiction and drama of twentieth-century America, including such writers as O'Neill, Donleavy, Alfred, and McHale.

ENG 4232 Ethnic Literature in America (3 q.h.)

The range, variety, and themes of ethnic literature in America in the work of such writers as Philip Roth, Toni Morrison, Maxine Hong Kingston, and F. Scott Momaday.

ENG 4233 Outside the Mainstream: The Literature of America's Subcultures (3 q.h.)

Literature that reflects the specific interests, values,

and concerns of America's diverse subcultural populations, including such works as *Black Elk Speaks*, *City of Night*, *Woman Warrior*, and the stories of Isaac Bashevis Singer.

ENG 4234 Modern American Voices: The New Essayists (3 q.h.)

Major nonfiction of the 1960s and 1970s, stressing the fresh styles and often disturbing cultural perspectives of such works as Mailer's *The Armies of the Night*, Pirsig's *Zen and the Art of Motorcycle Maintenance*, Dillard's *Pilgrim at Tinker Creek*, and Brautigan's *Trout Fishing in America* as well as shorter works of the "new journalism" and personal essays by such writers as Joan Didion, Tom Wolfe, Susan Sontag, and Woody Allen.

ENG 4240 Fiction and the Movies (3 q.h.)

Introduction to the exciting relationship between literature and cinema. Successes (and some failures) of efforts to transform famous novels and stories into worthy movies are studied by comparing the original book to the film version. Elementary film theory and criticism is taught and applied to such books-films as *Tom Jones*, *The Europeans*, *Sister Carrie*, *The Great Gatsby*, *Women in Love*, *The Big Sleep*, *The Treasure of the Sierra Madre*, *The Night of the Hunter*, *Lolita*, *The Last Picture Show*, *Shane*, *One Flew Over the Cuckoo's Nest*, *East of Eden*, and *Looking for Mr. Goodbar*. The number and choice of books-films may vary each quarter, depending upon the instructor and the availability of films.

ENG 4250 Biography and Nonfiction (3 q.h.)

Study of biography in an attempt to understand how individual behavior and achievement relate to social, cultural, political, and artistic values.

ENG 4260 The Literature of Adolescence (3 q.h.)

Adolescence as depicted in works drawn from different cultures and times. Examines popular versus literary views of adolescence, focusing on such themes as the struggle for self-definition, the role of peers, and the effects of gender and class.

ENG 4261 The Literature of Old Age (3 q.h.)

Old age as depicted in works drawn from different cultures and times. Examines popular versus literary views of old age, focusing on such themes as old age as a period of psychological reassessment; the role of family, class, and gender; and the emotional implications of confronting death.

ENG 4349 Expository and Persuasive Writing I (3 q.h.)

Designed to help students develop confidence and proficiency in writing. Through first drafts to revisions, weekly writing assignments concentrate on mastering the skills of subject focus, clarity of expression, controlled development, and organization. Attention is

given to improving grammatical accuracy and sentence structure during the revision process. *Prereq.* ENG 4110 or equiv.

ENG 4350 Expository and Persuasive Writing 2 (3 q.h.)

Development of precise and persuasive writing patterns through experiments with various rhetorical strategies. Students are expected to write extensively on topics of current interest to gain fluency and to learn how to target their writing toward different audiences. Assignments also provide practice in persuasive writing and in using different writing models to gain control of the material. *Prereq.* ENG 4349 or equiv.

ENG 4352 Expository Communications (3 q.h.)

Workshop in expository prose, emphasizing the practical problems of the writer on the job in advertising, public relations, or publishing. Includes practice in designing and writing special projects. *Prereq.* ENG 4349 or equiv.

ENG 4356 Creative Writing (3 q.h.)

Examination of a variety of writing genres for both writing majors and nonmajors. Includes exercises in such areas as journal writing, poetry, prose, drama, the short story, and the novel. Class members have the opportunity to read and discuss each other's work. Students may choose a favorite genre for a final writing project.

ENG 4357 Creative Writing: Poetry (3 q.h.)

Practice in writing different forms of poetry for beginning poets. Includes discussion and criticism of student work and selected texts.

ENG 4358 Creative Writing: Fiction (3 q.h.)

Practice in writing various types of short stories for beginning writers of short fiction. Includes discussion and criticism of student work and selected texts.

ENG 4359 Creative Writing Workshop (3 q.h.)

Discussion and criticism of student manuscripts for practicing writers.

ENG 4363 Writing for the Marketplace (3 q.h.)

Workshop for writers venturing into the marketplace, designed to provide a working knowledge of the publishing industry and useful practice in preparing and editing manuscripts for publication. Includes the development of effective strategies for composing query letters, synopses, outlines, and sample manuscripts.

ENG 4380 Business Writing and Reports I (3 q.h.)

Introduction to the vocabulary and philosophy of business communications. Practice in planning, writing, and analyzing effective business letters and memoranda. A *writing proficiency test is given at the first class meeting.*

ENG 4381 Business Writing and Reports 2 (3 q.h.)

Methods and principles of research and documentation of semitechnical analyses and business reports. Practice in organizing and writing complex forms of business communications. *Prereq.* ENG 4380 or equiv.

ENG 4383 Business Writing and Reports (Intensive) (6 q.h.)

Same as ENG 4380 and ENG 4381. A writing proficiency test is given at the first class meeting.

ENG 4500 The English Language (3 q.h.)

Development of modern English from its pre-Anglo-Saxon beginnings. Effects of Roman, Scandinavian, and Norman invasions; dialect geography; evolutionary change; and word formation and borrowing.

ENG 4501 Linguistics (3 q.h.)

Theories of the nature and origin of language, review of historical and comparative linguistics, prescriptive and descriptive grammars, and structural and generative-transformational phonology, morphology, and syntax.

ENG 4502 Semantics (3 q.h.)

The relation between language and behavior, levels of abstraction in communication, habits of evaluation of linguistic phenomena, and the modification of such habits for human understanding and survival.

ENG 4600 Topics in Literature (3 q.h.)

Examination of a variety of subjects and themes, such as the relationship between literature and the arts; the censored novel; alienation; and the Holocaust. Because the topics change from quarter to quarter, students may take this course more than once, provided that they focus on a different topic each time.

ENG 4602 Major Figures in Poetry (3 q.h.)

In-depth examination of the work of one poet, from apprenticeship to maturity. Poet chosen from among such major figures in England and America as Chaucer, Milton, Dickinson, and Frost. Students may take this course more than once, provided that they focus on a different figure each time.

ENG 4603 Major Figures in Fiction (3 q.h.)

Examination of the work of one fiction writer, from apprenticeship to maturity. Writer is chosen from among such major figures in England and America as Austen, Cooper, Joyce, Hemingway, and Bellow. Students may take this course more than once, provided that they focus on a different figure each time.

ENG 4610 The American Short Story (3 q.h.)

Development of the American short story from its nineteenth-century origins to its present forms. Includes such writers as Poe, Hawthorne, James, Hemingway, Roth, and Updike.

ENG 4611 The American Novel (3 q.h.)

Development of the novel in America and its characteristic qualities. Includes such writers as Cooper, Melville, James, Wharton, Faulkner, and Ellison.

ENG 4612 Contemporary American Poetry (3 q.h.)

Structure and themes of poetry in post-1945 America. Includes such writers as Ginsberg, Plath, Snodgrass, and Wilbur.

ENG 4640 The Twentieth Century (3 q.h.)

The prose and poetry of such twentieth-century writers as Yeats, Eliot, Joyce, Lawrence, Woolf, Thomas, and Lessing.

ENG 4641 Contemporary English Poetry (3 q.h.)

Structure and themes of poetry in post-1945 England. Includes the work of Gunn, Hughes, and Larkin.

ENG 4642 The English Novel (3 q.h.)

Development of the British novel from its beginnings in the eighteenth century through its concern with manners and morals in the nineteenth century to the experimentation of the twentieth century. Includes such writers as Fielding, Richardson, Austen, Dickens, Eliot, and Woolf.

ENG 4649 European and English Short Story (3 q.h.)

Development of the short story in Europe and England in both the nineteenth and twentieth centuries. Such writers as de Maupassant, Balzac, Mann, Camus, Kipling, Lawrence, Greene, and Böll are examined in terms of their themes, forms, and techniques.

ENG 4650 Modern Bestsellers (3 q.h.)

The fascinating world of modern bestsellers, a world of romance and adventure, of high living and sinister intrigue, by such popular writers as Rona Jaffe, Harold Robbins, Jacqueline Susann, and Irving Wallace.

ENG 4651 The Continental Novel (3 q.h.)

Development of the European novel through its various forms and themes, from Balzac and Tolstoy to Proust and Mann.

ENG 4655 Contemporary Fiction (3 q.h.)

The range and variety of such post-1945 fiction writers as Bellow, Updike, Lessing, Gordimer, Baldwin, and Roth.

ENG 4658 Shakespeare the Dramatist (3 q.h.)

Detailed examination of representative plays from Shakespeare's early, middle, and late periods in order to illustrate his development as a dramatist and define his principal themes in such plays as *A Midsummer Night's Dream*, *Romeo and Juliet*, and *King Lear*.

ENG 4659 Shakespeare: The Major Tragedies and Comedies (3 q.h.)

Study of examples of Shakespeare's mature dramatic art, such as *As You Like It*, *Much Ado About Nothing*, *Hamlet*, *Macbeth*, and *Antony and Cleopatra*.

ENG 4800 Directed Study I (3 q.h.)

Opportunity for qualified students to take an upper-level required course when the needed course is not available at the time recommended in the degree sequence. Petitions and procedural instructions are available in the Liberal Arts Program office. Allow at least six weeks to complete the petition process.

Prereq. 87 q.h.

ENG 4801 Directed Study 2 (3 q.h.)

Opportunity to initiate a second individual study as described in ENG 4800. *Prereq.* ENG 4800.

ENG 4802 Honors Program I (4 q.h.)

Independent work in a selected area under the direction of members of the department. *Prereq.* Program Director's approval.

ENG 4803 Honors Program 2 (4 q.h.)

Second opportunity to do independent work as described in ENG 4802. *Prereq.* ENG 4802 and Program Director's approval.

ENG 4804 Honors Program 3 (4 q.h.)

Additional opportunity to do independent work as described in ENG 4802. *Prereq.* ENG 4803 and Program Director's approval.

ESC 4100 Earth Sciences I (3 q.h.)

Fundamental components of the solid Earth and their modes of organization; the structure of the solid Earth and its mode of forming its crustal exterior; and the role of the oceans in building and shaping the continental masses.

ESC 4101 Earth Sciences 2 (3 q.h.)

Gaseous components of the fluid Earth, their organization into masses and systems, and their interaction. Long-range consequences of the fluid Earth's effects upon the solid Earth in the reshaping of land forms and the production of new land masses. *Prereq.* ESC 4101.

ESC 4102 Earth Sciences 3 (3 q.h.)

Earth as an object in space, the history of the Earth as identified through its solid materials, the implications of the Earth's history for other members of the solar system, and the solar system as a model for the universe. *Prereq.* ESC 4101.

ESC 4109 Earth Sciences (Intensive) (9 q.h.)

Same as ESC 4100, ESC 4101, and ESC 4102.

ESC 4159 Observational Astronomy (3 q.h.)

Introduction to the planets, stars, and constellations visible to the naked eye through lectures, visits to the planetarium, and actual viewing sessions. Emphasizes stars and constellations easily seen from mid-northern latitudes.

ESC 4200 Principles of Geology I (3 q.h.)

Crustal components of the Earth, their modes of formation, the forces involved in their shaping, and the relation of these factors to the structure and processes of the Earth's interior. *Prereq.* ESC 4100.

ESC 4201 Principles of Geology 2 (3 q.h.)

Forces and processes involved in the alteration, transportation, and deposition of crustal materials, their effects on the Earth's land forms, and the interactions of the oceans with the land masses. Not open to students who have credit for an equivalent course. *Prereq.* ESC 4200.

ESC 4202 Principles of Geology 3 (3 q.h.)

Sedimentary and radiochemical deposits of the Earth and their relevant contributions to understanding the history of the Earth. *Prereq.* ESC 4201.

ESC 4215 Principles of Oceanology I (3 q.h.)

Origin of the global ocean, the physical and chemical properties of sea water, the development of ocean currents and their effects on land masses of the world, and the problems of ocean pollution. *Prereq.* ESC 4101.

ESC 4216 Principles of Oceanology 2 (3 q.h.)

Habitat zones and organisms of the sea and the economic importance of renewable marine resources for an expanding world population. *Prereq.* ESC 4215.

ESC 4217 Principles of Oceanology 3 (3 q.h.)

Physiography and structure of ocean basins; marine geological processes and features; sedimentation, erosion, shorelines, and the topography of the ocean floor; and methods and techniques of marine geological exploration. *Prereq.* ESC 4216.

ESC 4230 Principles of Meteorology I (3 q.h.)

Composition and structure of the atmosphere, the issue of solar energy input, and the physical consequences for the dynamics of the atmosphere. *Prereq.* ESC 4101.

ESC 4231 Principles of Meteorology 2 (3 q.h.)

Formation, behavior, and interactions of air masses and the formation of fronts and storms. *Prereq.* ESC 4230.

ESC 4232 Principles of Meteorology 3 (3 q.h.)

Practices and procedures of weather reporting and forecasting, the formulation of weather maps, and the historical weather record and its value for studies of world climatology. *Prereq.* ESC 4231.

ESC 4245 Principles of Astronomy I (3 q.h.)

The nature and scope of astronomy, the geocentric and heliocentric universes, celestial reference systems, time and the calendar, the Sun-Moon-Earth system, and astronomical instruments. *Prereq.* ESC 4102.

ESC 4248 Historical Astronomy (3 q.h.)

Study of the numerous efforts to comprehend the nature of the universe through naked eye observations and simple instrumental techniques. *Prereq.* ESC 4102.

ESC 4249 Archaeo-astronomy (3 q.h.)

Artifacts, sites, and alignment factors that have recently been recognized as evidence that primitive cultures had a very sophisticated understanding of the night sky and its apparent behavior. *Prereq.* ESC 4102.

ESC 4332 Marine Resources (3 q.h.)

Quantitative and qualitative considerations of energy from the marine environment and current technological developments in the use of tidal power, off-shore oil, natural gas, and thermal and nuclear energy from the sea. Food resources of the sea, including analysis of world marine food production and technology, conservation, and mariculture. Shore erosion and coastal zone recreational resources. *Prereq.* ESC 4217.

ESC 4390 Solar System Astronomy (3 q.h.)

Individual components of the solar system. Contemporary results from the space probes are used to reassess our understanding of the origin and development of the solar system. *Prereq.* ESC 4102.

ESC 4391 Celestial Astronomy (3 q.h.)

The sun as a model star; variations of characteristics in single stars, star systems, and stellar populations; the H-R diagram and stellar evolution; and the significance of radio astronomy for stellar structure and stellar evolution. *Prereq.* ESC 4102.

ESC 4392 Cosmology (3 q.h.)

Structure and organization of the Milky Way galaxy; the nature of interstellar and intergalactic space; quasars, pulsars, and black holes; and cosmology. *Prereq.* ESC 4391.

ESC 4420 Conservation and the Nation (3 q.h.)

Conservation problems and land-use practices in the United States. Includes an in-depth study of the irrelevance of national boundaries to conservation issues.

ESC 4421 Conservation and the Community (3 q.h.)

Conservation problems and land-use practices at the local level. Includes an in-depth study of urban development and its impact on the environment.

ESC 4422 Conservation Management (3 q.h.)

Current conservation practices at the local level. Includes the role of relevant agencies, sources of knowledge and assistance, the nature and scope of practices needed, and the feasibility of community action. *Prereq.* ESC 4421.

ESC 4650 History of Ancient Sciences and Technologies (3 q.h.)

Development of science and technology prior to 1500 and their relationship to the society of the time. Classes combine lectures, discussion, and seminars based upon independent research and extensive outside reading.

ESC 4651 History of Modern Sciences and Technologies (3 q.h.)

Continuation of ESC 4650, from 1500 to the present. *Prereq.* ESC 4650.

ESC 4652 History of World Sciences and Technologies (Intensive) (6 q.h.)

Same as ESC 4650 and ESC 4651.

ESC 4801 Independent Study in Earth Science (3 q.h.)

Students focus on areas of special interest and relevance to their professional goals. Each student is paired with a faculty preceptor, who monitors and evaluates the completed project. Arrangements must be made with the Program Director prior to registering for the course; call 617-437-2818 for details.

FI 4101 Personal Finance (3 q.h.)

A practical approach to problems involved in managing personal finances. Includes financial planning, budgeting, obtaining credit and loans, income taxes, savings and investments, life insurance, home buying, and estate planning. Subjects are treated in a non-technical manner. Recommended for nonfinance majors.

FI 4301 Principles of Finance (3 q.h.)

The scope and nature of finance, introducing basic financial concepts and principles. Includes financial analysis, financial planning, working capital management, the time value of money, and an introduction to financial markets and different types of securities. *Prereq.* ACC 4102 and ECN 4116.

FI 4302 Financial Management (3 q.h.)

Introduction to financial management from both a domestic and an international perspective, using the case-method approach. Includes valuation, leverage, financial analysis and planning, working capital management, capital budgeting, cost of capital, and long-term and short-term financing decisions. *Prereq.* FI 4301.

FI 4303 Financial Strategy (formerly Financial Management 2) (3 q.h.)

Financial management using the case-method approach. Includes advanced capital budgeting, capital structure, decision making, dividend policy, leasing, convertibles and warrants, mergers, failures and reorganization, and the timing of financial policy. *Prereq.* FI 4302.

FI 4304 Financial Management (Intensive) (6 q.h.)

Same as FI 4302 and FI 4303. *Prereq.* FI 4301.

FI 4310 Investment Principles (3 q.h.)

Investment concepts, practices, and procedures. Reviews various types of investments, including the role of security markets and security analysis. *Prereq.* FI 4301.

FI 4311 Investment Management (3 q.h.)

Relationship between the economy and stock prices. Covers corporate analysis, earnings, dividends, and cash flow and introduces portfolio analysis. Studies technical analysis versus fundamental factors. *Prereq.* FI 4310.

FI 4312 Investments (Intensive) (6 q.h.)

Same as FI 4310 and FI 4311. *Prereq.* FI 4301.

FI 4320 Credit Principles (3 q.h.)

Introduction to credit and its functions. Examines the role of the credit executive, credit investigation, documentary credit, trade credit, and organization of the credit department. *Prereq.* FI 4301.

FI 4321 Credit Management (3 q.h.)

Forms of credit and collection services, including analysis of financial statements, determination of credit-worthiness, creditors' rights, adjustment bureau operations, credit insurance, and guarantees. *Prereq.* FI 4320.

FI 4325 Budgeting and Planning (3 q.h.)

Managerial planning, budgetary control, and financial analysis. Studies the interrelation between functional areas in an organization using consolidated profit planning as an integrating device. Covers fundamental financial analysis, comprehensive profit planning, general expense planning, production planning, materials planning, and purchasing. *Prereq.* FI 4301.

FI 4326 Financial Control (3 q.h.)

Development and application of variable budgets, planning and control of capital expenditures, computer applications in profit planning, cash flow planning and control, cost-profit-volume analysis, performance reporting, and analysis of budget variations. *Prereq.* FI 4325.

FI 4330 Management of Financial Institutions (3 q.h.)

Operation of bank and nonbank financial institutions and their role in the economy. Discusses operating objectives, services, asset management, and sources of financing and profitability. *Prereq.* FI 4302.

FI 4335 Bank Management (3 q.h.)

Financial management of commercial banks and thrift institutions. Problems of liquidity and investment management, loan portfolio and capital management, and various pricing problems in the context of a changing economic and regulatory environment. Lectures, discussions, and case studies. *Prereq.* FI 4302.

FI 4350 International Finance (3 q.h.)

Introduction to international finance management in the multinational corporation. Analyzes basic problems and finance considerations involved with international investments, trade, and payments. Also, planning in the international environment related to exchange rates, financial strategy, sources of capital, working capital management, fund flows, and management control through accounting and financial reporting. *Prereq.* FI 4303.

FI 4360 Commodities and Futures Markets (3 q.h.)

Commodities and futures markets and their objectives and operations, including hedging and speculation. Examines the role of banks and produce institutions in these markets and the techniques used to protect prices and positions. *Prereq.* FI 4311 or instructor's permission.

FI 4383 Personal Financial Planning (3 q.h.)

Development of financial planning expertise useful to those considering careers as personal financial planners. Includes budgeting, insurance, taxes, estate planning, basic investment vehicles and strategies, and related legal aspects. *Prereq.* FI 4301.

HMG 4100 Hospital Organization and Management I (3 q.h.)

Hospital organizational structure and administration. Focuses on the complex nature of health administration, its interdependent relationships and organizational strategy.

HMG 4101 Hospital Organization and Management 2 (3 q.h.)

Continuation of HMG 4100, emphasizing organizational issues and management techniques. *Prereq.* HMG 4100.

HMG 4103 Hospital Organization and Management (Intensive) (6 q.h.)

Same as HMG 4100 and HMG 4101.

HMG 4200 Health Science Statistics (3 q.h.)

Designed to give health practitioners the opportunity to learn to apply basic statistical techniques in the gathering, display, and interpretation of health data. Discusses principles of research design and agencies involved in collecting statistical data. *Prereq.* MTH 4111.

HMG 4210 Medical Care and Current Social Problems I (3 q.h.)

Presentation of some of the complex dilemmas faced in medical ethics today through lectures, seminars, and case studies. Includes the escalating cost of health care versus the ability to pay; teenage pregnancy; abortion; genetic counseling and screening; behavior control; alcoholism; and the "right to health care."

HMG 4211 Medical Care and Current Social Problems 2 (3 q.h.)

Such problem areas as child abuse; suicide; euthanasia; the withholding of treatment; the concept and exercise of informed, voluntary consent; patients' rights; the living will; human experimentation; and the allocation of scarce medical resources. *Prereq.* HMG 4210.

HMG 4215 Hospital Law and Ethics (3 q.h.)

Basic hospital legal issues relating to corporate and individual liability. Includes an analysis of consent and competency in health care, emphasizing bioethical questions raised by the removal of life-support systems.

HMG 4300 Home Health Care (3 q.h.)

Programs and techniques for providing effective community home health care and the impact of these programs on the health care delivery system.

HMG 4301 Health Care Delivery Systems

(3 q.h.)

The structure, function, and organization of health care services.

HMG 4310 Principles and Practices of Community Health I (3 q.h.)

Community health care activities. Emphasizes community health promotion and the coordination and integration of medical and self-care activities with the needs, goals, and resources of the community.

HMG 4311 Principles and Practices of Community Health 2 (3 q.h.)

Continuation of HMG 4310, emphasizing specific community health problem. *Prereq.* HMG 4310.

HMG 4400 Health Care Financial Management I (3 q.h.)

Introduction to health care financial management, including issues in fund accounting, control, and reimbursement. *Prereq.* FI 4101.

HMG 4401 Health Care Financial Management 2 (3 q.h.)

Continuation of HMG 4400. *Prereq.* HMG 4400.

HMG 4425 Applied Health Care Management I (3 q.h.)

Practical application of management principles in health care organizations. Examines problem areas in health care management settings, using actual experiences and case studies to help students deal more effectively with the increasingly complex health care field. *Prereq.* HMG 4101.

HMG 4426 Applied Health Care Management 2 (3 q.h.)

Continuation of HMG 4425. *Prereq.* HMG 4425.

HMG 4430 Communications for Health Care Personnel I (3 q.h.)

Two-part course examining the need for careful interviewing techniques, thorough record keeping, and accurate and articulate health care correspondence. Emphasizes effective interaction between patients and health care personnel, and between health care workers and staff members of health care agencies.

HMG 4431 Communications for Health Care Personnel 2 (3 q.h.)

Continuation of HMG 4430. *Prereq.* HMG 4430 or instructor's permission.

HMG 4550 Contemporary and Controversial Health Care Issues I (3 q.h.)

Current health care problems. Emphasizes the interrelationships between the economic, social, political, and environmental factors involved in the development and delivery of health care.

HMG 4551 Contemporary and Controversial Health Care Issues 2 (3 q.h.)

Continuation of HMG 4550. *Prereq.* HMG 4550.

HMG 4600 Long-Term Care Administration I (6 q.h.)

Organization of care for the long-term and chronically ill patient. Examines the goals, purposes, and design of long-term care facilities as well as budgeting, financing, capital funding, and administration. *Prereq.* HMG 4101.

HMG 4601 Long-Term Care Administration 2 (6 q.h.)

Internal and external systems pertinent to the long-term care facility. Examines such topics as the nursing unit, the role of the physician, therapies, licensing agencies, hospitals, and methods for improving services. *Prereq.* HMG 4600 or equiv. or permission of Director of Health Professions.

HMG 4602 Long-Term Care Administration 3 (6 q.h.)

Long-term care institutions and their impact on the health care industry. Considers the nature and problems of aging and the care of the elderly in the home, in the community, and in institutions. A general survey and summary of the Massachusetts Nursing Home Administrators Licensure Examination is included. *Prereq.* HMG 4601 or equiv. or permission of Director of Health Professions.

HMG 4610 Principles and Practices of Community Mental Health (3 q.h.)

Introduction to the principles of community mental health, emphasizing the development, implementation, operation, delivery, and use of community mental health services.

HRA 4302 Medical Terminology Survey (3 q.h.)

Introduction to the medical terminology of a variety of medical disciplines. *Not open to health record students.*

HRA 4305 Language of Medicine I (2 q.h.)

Analysis and definition of medical terms, including anatomical, diagnostic, operative, symptomatic, and pathological terms. *Prereq.* Courses in Anatomy and Physiology.

HRA 4306 Language of Medicine 2 (2 q.h.)

Continuation of HRA 4305. *Prereq.* HRA 4305.

HRA 4308 Hospital Management for Health Record Administrators (3 q.h.)

Introduction to health care facility management principles. Examines the interaction of the board of trustees, administration, staff, and interdisciplinary

departments within a facility as well as licensing and accrediting agencies that set the standards and policies for health care facilities.

HRA 4310 Health Record Science 1 (6 q.h.)

Introduction to health records, covering health record history, numbering, filing, and security and the health record administrator's relationship to the health care facility. Stresses quantitative and qualitative analysis of the record; includes laboratory experience. *Prereq.* 80 q.h., including BIO 4177 and HRA 4306.

HRA 4311 Health Record Science 2 (6 q.h.)

Methods of record retention, security, and preservation; laws related to patient care and health records; classification theory; basic disease coding; and word processing and transcription. *Prereq.* HRA 4310.

HRA 4312 Health Record Science 3 (6 q.h.)

Basic principles of compiling statistics for hospital and health facilities. Includes preparation of reports, vital statistics reporting, classification theory, principles of disease coding, and special indices. *Prereq.* HRA 4311.

HRA 4313 Health Record Science 4 (6 q.h.)

Health care legislation, quality assurance, utilization review, PSROs, and planning agencies and their impact on record management. Introduction to specialized record systems. *Prereq.* HRA 4312.

HRA 4314 Health Record Science 5 (6 q.h.)

Continued study of specialized record systems. Includes ambulatory care, home care, and long-term care, approached in terms of information management and quality assurance. Discusses problems presented by changing patterns in health care delivery and reviews current literature. *Prereq.* HRA 4313.

HRA 4320 Organization of the Health Record Department 1 (3 q.h.)

The health record department and its organization, lines of responsibility and authority, and personnel roles and functions. Stresses management principles and practices. *Prereq.* HRA 4308, HRA 4312, and HRA 4324, or *Clinical Coordinator's permission.*

HRA 4321 Organization of the Health Record Department 2 (3 q.h.)

Health record department office management problems and their solutions, including quality control, time standards, budgeting, office manuals, and work simplification systems. *Prereq.* HRA 4320.

HRA 4324 Applied Health Record Science 1

(3 q.h.)

Clinical practicum in health record science in the general hospital. *Prereq.* HRA 4312.

HRA 4325 Applied Health Record Science 2

(2 q.h.)

Clinical practicum in health record science in specialized health settings. *Prereq.* HRA 4324.

HRA 4326 Applied Health Record Science 3

(4 q.h.)

Clinical practicum in health record management in the health care facility. *Prereq.* HRA 4325.

HRA 4330 Health Record Computer Science

(3 q.h.)

Electronic data processing in the health record and hospital environment. Assesses state-of-the-art information systems and their future in health record management. *Prereq.* MIS 4101 and HRA 4314.

HRA 4332 Topics in Health Records (3 q.h.)

Current issues in health record administration, focusing on inservice, personnel management, health care finance, and computer applications and trends.

HRM 4301 Organizational Behavior (3 q.h.)

Fundamentals of organizational life, emphasizing the structure and discipline of groups typically found in a business setting. Issues and data related to leadership styles, employee motivation, and organizational dynamics. Requires significant student participation.

HRM 4302 Introduction to Human Resources Management (3 q.h.)

Introduction to the rights and responsibilities of employer organizations, individual employees, and employee organizations and how they influence personnel and labor relations activities within an organization. *Prereq.* HRM 4301.

HRM 4303 Applied Human Resources Management (3 q.h.)

Goals and structures of various employer and employee organizations are examined and evaluated in terms of effective human resources management. Discusses how the collective bargaining process changes in anticipation of future labor-management relations. *Prereq.* HRM 4302.

HRM 4304 Organizational Behavior and Introduction to Human Resources Management (Intensive) (6 q.h.)

Same as HRM 4301 and HRM 4302.

HRM 4310 Personnel Management 1 (3 q.h.)

The role of the human resources manager, the role of the personnel department in personnel planning and selection, and employment development and evaluation programs. Case-study analyses require student participation.

HRM 4311 Personnel Management 2 (3 q.h.)

Continued examination of human resources management. Includes labor-management relations, compensation programs, safety, and affirmative action functions. Case-study analyses require student participation. *Prereq.* HRM 4310.

HRM 4313 Personnel Management (Intensive) (6 q.h.)

Same as HRM 4310 and HRM 4311.

HRM 4320 Techniques of Employee Selection (3 q.h.)

Recruitment, selection, and placement techniques, including interviewing and employment testing.

HRM 4321 Wage and Salary Administration (3 q.h.)

Wage and salary determination, including merit and incentive plans, wage and salary structure, compensation methods, and the impact of employer-employee relations on the economy.

HRM 4322 Employee Benefits (3 q.h.)

Private and public programs related to job and worker income security. Includes unemployment compensation, training and employment services, private guaranteed income, retirement pension plans, and disability and group insurance.

HRM 4323 Job Evaluation (3 q.h.)

Wage-payment systems, wage determination, job elements, rating scales, the writing of job descriptions and specifications, selection of plans, development of wage structures, and principles of merit rating.

HRM 4324 Creative Problem Solving (3 q.h.)

Opportunity to learn and practice new ways of thinking. Discusses ways to sense and analyze problems, develop ideas, and evaluate and implement solutions, and examines the attitudes and climates conducive to creative thinking. Also provides methods for developing imagination, the key part of the creative process.

HRM 4330 Employment Rights—Wage and Hour Law (3 q.h.)

Minimum wage, hours of work, overtime, and other pertinent rules and regulations, and child labor laws, such as the Fair Labor Standards Act, the Davis-Bacon Act, and the Walsh-Healy Act. *Prereq.* HRM 4303.

HRM 4331 Employment Rights—Health, Safety, Disability, and Workers Compensation Law (3 q.h.)

Laws dealing with health, safety, disability, and compensation for work-related injuries. Covers Occupational Safety and Health Act, ERISA, Social Security, Unemployment Compensation, Workers Compensation, Federal Employees Liability Act, and other related laws. *Prereq.* HRM 4303.

HRM 4332 Employment Rights—Fair Employment Law (3 q.h.)

The old Civil Rights Laws (Sections 1981, 1983, 1985 [3], 1988); Title VI, VII, and IX of the Civil Rights Act of 1964; Age Discrimination in Employment Act; Equal Pay Act; Sections 503 and 504 of the Rehabilitation Act of 1973; Equal Opportunity Act 11246; Affirmative Action and related areas; and current rulings and court decisions regarding discrimination on the basis of race, sex, religion, national origin, age, and disability. *Prereq.* HRM 4303.

HRM 4340 Public Sector Collective Bargaining in the United States (3 q.h.)

Recent activities of employee unions in national, state, and local governments; weighing of the public interest; impact on services; and study of the administration of personnel and labor relations in these localities. *Prereq.* HRM 4303.

HRM 4341 Private Sector Collective Bargaining in the United States (3 q.h.)

Critical issues and problems affecting unionized employees, their organizations, employers, and the public in the private, domestic sector of our economy. Research and preparation of position paper by the student; class discussion. *Prereq.* HRM 4303.

HRM 4345 International Labor Relations (3 q.h.)

Comparison and contrast of selected international labor relations systems with that of the United States, including recent developments such as worker participation and co-determination. Research and preparation of position paper by the student; class discussion. *Prereq.* HRM 4303.

HRM 4346 Workshop in Labor-Management Relations (3 q.h.)

Negotiation skills, the use of mediation and fact finding in collective bargaining agreements, the interpretation and application of such agreements, and the use of arbitration. Student participation in simulated negotiation and grievance procedures. *Prereq.* HRM 4303.

HSC 4210 Basic Nutrition (3 q.h.)

Introduction to nutrition for students in the health field. Focuses on current scientific knowledge of nutrition and how this knowledge can guide an individual toward making appropriate food choices. Students should have a high school background in chemistry and biology.

HSC 4220 Basic Pharmacology (3 q.h.)

Introduction to the major classes of drugs. Presents the mode of action, common side effects, dosage, pharmaceutical forms, rate and route of administration, and known interactions and toxicities of the most commonly used drugs. *Prereq.* BIO 4177, CHM 4113, or equiv., or instructor's permission.

HSC 4301 Foundations of Medical Science I (3 q.h.)

The pathophysiology of major diseases. Discusses diagnosis and treatment, emphasizing inflammation, immunology, infectious disease oncology, endocrine disorders, and trauma. *Prereq.* BIO 4177 or equiv.

HSC 4302 Foundations of Medical Science 2 (3 q.h.)

Continuation of HSC 4301, using an organ-system approach to disease. Emphasizes cardiovascular, gastrointestinal, pulmonary, and musculoskeletal diseases. *Prereq.* HSC 4301.

HSC 4310 Public Health 1 (3 q.h.)

Principles of public health and current mental and physical health problems. Includes communicable diseases, mental health, maternal and child health, alcoholism, and chronic diseases. Also examines federal, state, and community resources mobilized to aid in prevention, identification, treatment, and rehabilitation.

HSC 4311 Public Health 2 (3 q.h.)

Continuation of HSC 4310, including environmental health; official, voluntary, and international health organizations; preventive medicine; and public health education.

HSC 4315 Environmental Problems and Health (3 q.h.)

Environmental conditions on land and in the air and water, including the causes of pollution, its effects on human and other life, and a general discussion of current control methods. Emphasizes the significance of environmental problems for the individual.

HSC 4320 Health Science Education 1 (3 q.h.)

Educational program design for the practitioner, including program planning, teaching strategies, and the development and evaluation of educational objectives.

HSC 4321 Health Science Education 2 (3 q.h.)

Continuation of HSC 4320, emphasizing program implementation and evaluation and student motivation. *Prereq.* HSC 4320.

HSC 4600 Advanced Nutrition (3 q.h.)

Food chemistry, nutrition, and physiology as applied to diet. Includes recent developments in normal nutrition and a critical review of the literature and experimental data on which principles of human nutrition are based. *Prereq.* BIO 4103, HSC 4210.

HSC 4601 Advanced Pharmacology (3 q.h.)

Prereq. HSC 4220 or equiv.

HSC 4602 Methods and Materials in Public Health Education (3 q.h.)

Introduction to public health education. *Prereq.* HSC 4311 or instructor's permission.

HSC 4610 Geriatric Nutrition (3 q.h.)

Integration of basic nutrition principles with the most current information on the aging process. Reviews state, local, and federal nutrition programs in terms of services, eligibility, and effect upon the elderly. *Prereq.* Knowledge of basic nutrition or instructor's permission.

HSC 4613 Oral Microbiology (3 q.h.)

Microbiota inhabiting the ecologic niches of the oral cavity. Examines factors that contribute to the role of bacteria in oral pathology, particularly caries and periodontal disease, and the relationship of bacteria and therapy. *Prereq.* BIO 4190.

HSC 4614 Advanced Periodontology 1 (3 q.h.)

Diagnosis, treatment, and control of periodontal diseases, starting with a review of the structure and purposes of the periodontal tissues. Emphasizes the role

of the dental hygienist in recognizing and treating disease, motivating and instructing the patient, and carrying out periodontal maintenance therapy. Includes mucogingival problems, furcation involvements, acute gingival infections, root planing, and gingival curettage. Students prepare a paper on a topic of special interest. *Prereq.* Dental Hygiene Certificate.

HSC 4615 Advanced Periodontology 2 (3 q.h.)

Latest advances and theories in periodontology. Includes the role of bacteria in pathology, immunopathology, and therapeutic alternatives. Class participation is stressed. *Prereq.* Dental Hygiene Certificate or instructor's permission.

HSC 4801 Special Topics in the Health Professions 1 (3 q.h.)

Independent study enables health science, health management, and health record students to focus on areas of special relevance to their professional goals. Materials are developed with the aid of a faculty advisor to reflect the student's special background and needs. Arrangements should be made with the faculty advisor prior to registering for the course. *Not open to medical laboratory science students.*

HSC 4802 Special Topics in the Health Professions 2 (3 q.h.)

Continuation of HSC 4801. *Not open to medical laboratory science students.*

HSC 4803 Special Topics in the Health Professions 3 (3 q.h.)

Continuation of HSC 4802. *Not open to medical laboratory science students.*

HST 4101 The Civilization of the Ancient and Medieval Worlds (formerly History of Civilization 1) (3 q.h.)

Development of human institutions up to the end of the Middle Ages. Emphasizes the continuities and changes that occur within civilizations and the similarities, differences, and relationships that exist among contemporary civilizations around the world. Explores implications of each historical period for our lives today.

HST 4102 The Civilization of the Early Modern World (formerly History of Civilization 2) (3 q.h.)

The period from the end of the Middle Ages to the French Revolution in 1789. Emphasizes the intellectual, technological, and political expansion of Europe and the reactions of the rest of the world to it. Special attention is given to such topics as the rise of dynastic states, the rise and fall of mercantilism, the scientific revolution, exploration and gunpowder technology, and order and revolution.

HST 4103 The Civilization of the Modern World (formerly History of Civilization 3) (3 q.h.)

The world from 1789 to the present. Includes capitalism, industrialization, nationalism, imperialism, the clash

of ideologies in the nineteenth century, and a study of total war in the present century. Based on this historical study, explores prospects for the future.

HST 4110 History of Civilization A (4 q.h.)

Major ideas and institutions of civilizations from ancient times to 1648. *For Alternative Freshmen only. Not open to students who have taken HST 4101 or HST 4102.*

HST 4111 History of Civilization B (4 q.h.)

Continuation of HST 4110, covering the period since 1648. *For Alternative Freshmen only. Not open to students who have taken HST 4102 or HST 4103.*

HST 4201 American History 1763-1848

(formerly American History 1) (3 q.h.)

America from 1763 to 1848, with attention to the development of political, economic, and social institutions in the new republic.

HST 4202 American History 1848-1917

(formerly American History 2) (3 q.h.)

The United States from 1848 to 1917, with attention to the Civil War, economic development thereafter, and the Progressive Era.

HST 4203 American History since 1917

(formerly American History 3) (3 q.h.)

The United States since 1917, an age of urbanized industrialism and international involvement and crisis.

HST 4241 The Historian's Craft (3 q.h.)

Ways in which the historian studies the past, with emphasis on research and writing.

HST 4263 Oral History (3 q.h.)

Learning history from those who lived it. Students conduct tape-recorded interviews of first-hand experiences in a selected area of twentieth-century history. Students need access to an audiotape recorder.

HST 4265 Introduction to Public History

(3 q.h.)

The new discipline of public historical archiving, the construction of historical displays and exhibits, the preservation and restoration of historic sites and structures, the editing of historical documents and journals, the operation of historical societies, and the production of historical media programs.

HST 4301 Technological Transformation of Society (3 q.h.)

The relation between technological innovations and the world in which they take place. Discusses conditions necessary for discovery and innovation and the impact of technology on the political, economic, and social environment.

HST 4302 History of Flight and Space (3 q.h.)

Beginning with the ancient Greeks' and Leonardo da Vinci's dreams of flight, the course traces the history of nonpowered flight from the balloon experiments of the Montgolfier brothers to contemporary

hanggliders; of powered flight from the Wright brothers through supersonic transport; and of rocketry and space travel from their beginnings through the *Enterprise*.

HST 4303 History of the Automobile (3 q.h.)

History of the automobile in Europe and America. Includes invention, production, impact on social and economic life, and the problems of pollution and energy.

HST 4304 History of Energy (3 q.h.)

How human beings have mobilized the forces of nature to survive, to alter and improve their lifestyles, and to dominate their fellow human beings. Emphasizes the transformation from one energy source to the available alternatives and the reasons for the choices made. Includes the change from human power to animal and machine power, the energy crisis of the sixteenth century, the turning from wood to water and coal power, the rising use of electricity and fossil fuels, the birth of the Atomic Age, and the contemporary history of the oil crisis.

HST 4401 Ancient Middle East (3 q.h.)

Study of ancient cultures and peoples in the Middle East to the rise of Islam.

HST 4403 History of the Jews I (3 q.h.)

Cultural and intellectual survey of the Jews from the end of antiquity to early modern times.

HST 4404 History of the Jews 2 (3 q.h.)

Role and position of the Jews in modern history.

HST 4407 Ancient Greece (3 q.h.)

Origin and development of Greek civilization.

HST 4408 Ancient Rome (3 q.h.)

Ancient Roman civilization, emphasizing the rise of the Republic and the decline of the Empire.

HST 4410 The Middle Ages (3 q.h.)

History of Europe from the fall of Rome to 1350.

HST 4412 Islamic History (3 q.h.)

History of the Muslim Arab world from the seventh century to the end of the Abbasid Caliphate in 1258.

HST 4420 Renaissance and Reformation

(3 q.h.)

History of Europe from 1350 to 1648, with attention to intellectual, religious, political, and economic developments.

HST 4424 Europe 1870-1921 (3 q.h.)

Background of World War I, including nationalism, militarism, imperialism, and the alliance system as well as the making of war and peace.

HST 4425 Europe since 1921 (3 q.h.)

Europe after World War I; World War II; the Cold War; and the efforts to unify the continent.

HST 4434 Family History (3 q.h.)

History of the family in Europe and America from 1600 to the present. Includes the changing nature and role of the family, marriage and divorce, child rearing, and aging.

HST 4435 Women in European History

(3 q.h.)

Historical examination of the position and role of women in European life.

HST 4443 European Intellectual History since 1815 (3 q.h.)

Main currents of European thought from Romanticism to the present and their social and political contexts.

HST 4455 Ireland since 1800 (3 q.h.)

The Irish question in British politics from the Act of Union to the present.

HST 4460 Hitler's Germany (3 q.h.)

Origins and nature of Hitler's Third Reich, emphasizing the personal lives of Nazi leaders in an attempt to understand how seemingly ordinary people could enthusiastically promote wars of aggression and revel in genocidal policies.

HST 4466 History of Eastern Europe since 1500 (3 q.h.)

Stefan Bathory and papal interest in Orthodox Russia; Western interference in Russia's "Time of Troubles"; Swedish invasions and the Northern War; the decline of Poland through Stanislaw Poniatowski and Czarina Catherine the Great of Russia. Also, the partitions of Poland and Tadeusz Kosciuszko; Napoleon; revolutionary movements through 1848; Slavic romantic revolutionaries and the *fin de siècle*; World War I and the reconstruction of eastern Europe; Hitler; Stalin; World War II; and the Iron Curtain.

HST 4467 Russia to 1917 (3 q.h.)

Emergence of Russia as a recognized European power; history of the Russian people and government to the revolutions of 1917.

HST 4468 Russia since 1917 (3 q.h.)

The revolutions of 1917 and the subsequent history of the Russian people and government, with special emphasis on foreign relations.

HST 4469 Russian Expansionism (3 q.h.)

Russia's quest for territory after 1500, with attention to the conquest of neighboring territories, the Sino-Russian disputes, and current issues in Soviet geopolitics.

HST 4501 American Indians (3 q.h.)

Survey of native Americans from pre-Columbian times to the present.

HST 4502 Colonial America (3 q.h.)

Exploration and settlement of North America; the development of political, social, and economic institutions; and the international rivalry to 1763.

HST 4503 The American Revolution (3 q.h.)

British-American relations after 1763; war and peace.

HST 4511 Populism and Progressivism (3 q.h.)

Topical history of the United States from 1890 to 1920, concentrating on its reactions to industrialization and urbanization.

HST 4512 The Age of Roosevelt (3 q.h.)

Topical history of the United States in time of world war, prosperity, depression, and war again.

HST 4513 Contemporary America (3 q.h.)

The American people from the close of World War II to the present.

HST 4523 American Diplomatic History

(3 q.h.)

Selected topics in the history of American foreign relations and policy since 1789.

HST 4530 American Economic History (3 q.h.)

Selected topics in the development of the capitalist economy in the United States, with attention to the role of government since 1789.

HST 4540 American Social History (3 q.h.)

Selected topics in the life of the American people since 1789.

HST 4542 Women in American History

(3 q.h.)

Historical examination of the position and role of women in American life.

HST 4543 African-American History (3 q.h.)

History of African Americans from colonial times to the present.

HST 4547 History of Sport in America (3 q.h.)

History of the major sports and their impact on American life.

HST 4548 American Heroes (3 q.h.)

Comparative exploration of the nature and functions of heroism in American history, using such individuals as George Washington, Jesse James, Amelia Earhart, Martin Luther King, and Bruce Springsteen as specific case studies.

HST 4549 American Inquisitions (3 q.h.)

Inquisitions in modern America, concentrating on the suppression of radical movements by both government and private groups.

HST 4550 Boston to 1822 (3 q.h.)

The Town of Boston from its establishment in 1630 to 1822 and the development of political, economic, and social institutions.

HST 4551 Boston since 1822 (3 q.h.)

The City of Boston, its annexations, and the changes in the ethnic nature of the population.

HST 4602 Contemporary Latin America

3 q.h.)

Social, economic, and political development of the Latin American republics in the twentieth century.

HST 4603 The United States, Central America, and the Caribbean (3 q.h.)

Latin American countries nearest the United States and most affected by U.S. policies, particularly Cuba, Mexico, Nicaragua, El Salvador, and Guatemala. Emphasizes the historical background of current issues.

HST 4611 Africa since 1885 (3 q.h.)

The European impact on Africa, the rise of African nationalism, and the emergence of independent African states and their relations with other nations.

HST 4622 Modern Middle East (3 q.h.)

The Middle East since 1914, with attention to Zionism, Pan Arabism, the effects of two world wars, and the postwar settlements.

HST 4632 China since 1850 (3 q.h.)

A century of China's history, emphasizing the Western impact on Chinese civilization, China's struggle to maintain independence, and the victory of communism in the mid-twentieth century.

HST 4636 Japan since 1850 (3 q.h.)

Analysis of Japanese domestic developments and foreign relations since the mid-nineteenth century.

HST 4640 Third World Women (3 q.h.)

Role of women in the less developed, Third World areas, with special emphasis on aspects of change, development, and continuity.

HST 4645 History of the Vietnam Wars (3 q.h.)

History of military conflict in Vietnam, with attention to the rise of the Viet Minh during World War II, the struggle against the French in the first Indochina War, the impact of the Cold War, and the involvement of the United States after 1950 in Laos and Cambodia (now Kampuchea) as well as in Vietnam. Emphasizes the role of communism and nationalism in Indochina and the motives for American intervention. Includes films revealing American reaction to the escalating conflict.

HST 4801 Directed Study I (3 q.h.)

Opportunity for qualified students to take an upper-level course in their major on an individual basis. Petitions and procedural instructions are available from the Liberal Arts Program office, 617-437-2416. *Prereq.* 87 q.h.

HST 4802 Directed Study 2 (3 q.h.)

Opportunity to initiate a second individual study as described in HST 4801. *Prereq.* HST 4801.

HST 4811 Honors Program I (4 q.h.)

Prereq. Program Director's approval.

HST 4812 Honors Program 2 (4 q.h.)

Prereq. HST 4811 and Program Director's approval.

HST 4813 Honors Program 3 (4 q.h.)

Prereq. HST 4812 and Program Director's approval.

HST 4821 Field Work in History (6 q.h.)

Extracollegiate experience doing historical research or working in historical agencies. (Refer to page 83 for a general description of field work courses.) *Prereq.* HST 4101, 4102, 4103; HST 4201, 4202, 4203, 4241; and Program Director's approval.

HTL 4301 Introduction to Hotel and Restaurant Management (3 q.h.)

The hospitality industry in today's economy. Emphasis is on industry growth and development, management problems, and principles of hotel and restaurant management.

HTL 4303 Front Office Management (3 q.h.)

Role and functions of the front office as they relate to the operation of the entire hotel. Covers front office structure, registration, payment, reservations, and night audit.

HTL 4304 Hotel and Restaurant Law (3 q.h.)

Introduction to the fundamental laws, rules, and regulations applicable to the hospitality industry. Includes hospitality management policies that minimize the danger of legal liability; innkeeping; restaurant management; alcoholic beverage control; labor laws; and legislation affecting the hospitality industry.

HTL 4305 Food Preparation I (3 q.h.)

Introduction to the fundamentals of food preparation and service, with emphasis on food service industry terminology and equipment. Includes menu planning, requisitioning, pricing, and preparation and service. In addition to classroom instruction, students prepare food in a small-quantity laboratory. (Laboratory fee)

HTL 4306 Food Preparation 2 (3 q.h.)

Continuation of HTL 4305. *Prereq.* HTL 4305. (Laboratory fee)

HTL 4307 Food Service Engineering and Sanitation (3 q.h.)

Organization of the maintenance and engineering function. Includes the technical information necessary to establish effective preventive programs. Details the fundamentals of sanitation for food service employees and includes practical guidelines for safe food handling. Provides the future hospitality manager with an opportunity for certification in Applied Food Service Sanitation from the National Institute for the Food Service Industry.

HTL 4308 Food and Beverage Cost Control (3 q.h.)

Introduces management attitudes toward cost controls through analysis of all aspects of the food service operation. Includes classification of food service facilities, cost accounting, purchasing, inventory, production

control methods, and the essentials of food and beverage controls. Develops management-mindedness through examination of organizational structures of food service and specific topics, such as menu pricing, break-even analysis, and cost-volume-profit theory. Emphasizes forecasting and achieving a profitable bottom line.

HTL 4309 Managerial Accounting for the Hospitality Industry (3 q.h.)

Financial practices and systems used in the hospitality industry. Analyzes controls, budgeting, financial statements, and specialized industry accounting procedures. *Prereq.* ACC 4102.

HTL 4310 Hospitality Marketing Management (3 q.h.)

The market in which the hospitality industry operates. Students have the opportunity to develop and implement a marketing plan to meet operational goals. *Prereq.* MKT 4301.

HTL 4313 Introduction to Tourism (3 q.h.)

Introduction to the science, art, and business of attracting, transporting, and accommodating visitors and graciously catering to their needs and wants. Includes sociological and psychological aspects, marketing, and the economics of tourism.

HTL 4320 Food Preparation (Intensive) (6 q.h.)

Same as HTL 4305 and HTL 4306.

HTL 4322 Consumer Food Preparation (3 q.h.)

Concepts and skills learned in HTL 4305 and HTL 4306 are applied in a restaurant setting. Preparation of complete menus for a service dining room, including appetizers, soups, salads, entrees, vegetables, and desserts. Stresses costing, menu planning, quantity recipe production, menu terminology, and kitchen organization. Coordinates food production with students in the dining room service course (HTL 4324). Classical kitchen stations are worked on a rotating basis. *Prereq.* HTL 4306 or HTL 4320.

HTL 4324 Dining Room Beverage Operation and Preparation (3 q.h.)

Introduction to the operation of a dining room with beverage service. Includes organization, personnel, methods of table service, menu terminology, table arrangement, requirements for supplies and equipment, sales promotion techniques, and revenue control. Students serve meals prepared by students in the food production course (HTL 4322). Also covers wine service and alcoholic beverage preparation and control. *Prereq.* HTL 4301.

IM 4301 Operations Management (formerly Production Management I) (3 q.h.)

Identification and analysis of the operating system. Integrates modeling and simulation techniques and

methods, both quantitative and qualitative, and applies them to operation issues. *Prereq.* MS 4325.

IM 4310 Manufacturing Processes (3 q.h.)

Production processes and material selection in the production and manufacture of hard goods. Includes selection of best methods by study of casting, machinery, forming, joining, extrusion, finishing, and assembly. Analyzes advanced manufacturing processes, such as mass production, numeric control, central versus line layout systems, automated systems, computer control equipment and systems, equipment and machinery selection, and replacement policies.

IM 4311 Methods Analysis, Motion and Time Study (3 q.h.)

Methods analysis and plant layout, including work design, operations analysis, human-machine relationship, and elements of motion and time study. Studies measurement techniques and application as well as production standards development for job shop operations. Applies curve, table, equation, nomograph, family, and multivariable techniques and uses work-sampling methods.

IM 4312 Issues in Operations Management (formerly Operations Management) (3 q.h.)

Quantitative and qualitative points of view and their application to problems that arise in planning and controlling production and service businesses.

IM 4313 Cases in Industrial Management (3 q.h.)

Case-study analyses of complex operating situations faced by business managers. Integrates basic disciplines in the quantitative and behavioral sciences with an understanding of the specific situation. Cases are designed to provide the necessary background in topics relevant to production problems.

IM 4314 Production Control and Inventory Management (3 q.h.)

Theory and practice of the economic control of inventories. Covers a broad spectrum of models for production control and inventory management, problem solving through analytical methods and numerical simulation, and practical ways to apply concepts and techniques.

IM 4315 Industrial Decision Making I (3 q.h.)

Application-oriented introduction to prescriptive decision analysis. Examines the systematic approach to problem solving and decision making, decision theory, the structure of human decisions, and the modeling of the decision process. *Prereq.* MTH 4112.

IM 4316 Industrial Decision Making 2 (3 q.h.)

Application of probability and utility theory, psychology, and economics to the decision process. Includes the perception of options, uncertainties and objectives, decision trees and other modes of representation, and criteria of choice, including preference and utility,

attitude to risk, and expected value. Also covers practical application of techniques to career planning, job and organization design, and managerial effectiveness. Surveys current practices, using real-world cases. *Prereq.* IM 4315.

IM 4317 Materials Management (3 q.h.)

Development and examination of materials management, including objectives, organization, and functions as they relate to cost improvement, investment control, and the ability to serve the market. Materials systems and selected case studies.

IM 4318 Economic Analysis in Industry (3 q.h.)

Principles and techniques needed for analysis of the acquisition and retirement of capital goods by industry and government. Covers the assumptions underlying the various measures of anticipated profitability of capital expenditures and their uses and limitations.

IM 4319 Value Management (3 q.h.)

Organized technique for challenging costs by analyzing a product or method in terms of value, function, and costs without sacrificing essential quality.

IM 4320 Managing for Results (3 q.h.)

Serves as a forum for the discussion of the wide-ranging theories of Peter Drucker. Emphasizes the concepts and methods available to the results-oriented manager. Establishes the relations between theory and practice, including implementation.

IM 4321 Management and Operational Control Systems (3 q.h.)

The nature of control in general and the specific characteristics of management and operational control. Studies control structures, processes, and bases for design and implementation.

IM 4340 Seminar in Operations Management (formerly Manufacturing Seminar 1) (3 q.h.)

Problems and opportunities found at the operating level. Includes the development of selected topics of interest to the student. *Prereq.* IM 4310 and IM 4314.

INT 4100 Planning a Business Career (3 q.h.)

Helps students develop career decision-making skills. Includes exercises to help students research various business careers by identifying and evaluating interests, values, skills, and competencies; examines resources and strategies such as field survey techniques. Also includes résumé preparation and interviewing techniques.

INT 4101 The Elements of Management (3 q.h.)

Introduction to the technical, quantitative, and specialized areas of management. Familiarizes students with the language and operational complexities of the manager's job and offers an opportunity to raise their level of diagnostic, analytic, and integrating competence. Four modules of three weeks each include economics and finance; budgeting and accounting; marketing; and information systems.

INT 4102 Women in Business

Organizations 1: Structural and Behavioral Fundamentals (3 q.h.)

Effective management practices and the factors that impede women from acquiring them. Stresses the importance of effective communication and dealing with criticism. Tests the validity of common behavioral assumptions, including women's fears of success, inadequate motivation, lack of social access, and disinclination to take charge or withstand pressure.

INT 4103 Women in Business

Organizations 2: Leadership and Communications (3 q.h.)

Dynamics of leadership as they relate to the successful woman manager, including managing conflict, securing control, instituting change, motivating and disciplining others, gaining respect, and distinguishing supervisory from management performance standards. Role playing and case studies assist in the development of leadership and problem-solving capabilities. *Prereq.* INT 4102 or equiv.

INT 4110 Self-Assessment and Career Development (3 q.h.)

Understanding the concept of life and career planning and its practical implications for future education and/or work. Students complete a self-assessment, including an evaluation of their competencies and skills, and receive training in career decision making, with practice in the use of field survey techniques. Overview of job campaigning includes introduction to résumé preparation and interviewing techniques.

INT 4200 The Creative Process (3 q.h.)

Thought processes that allow individuals to be creative or original. Through interactive exercises and special projects in composition and problem solving, students can learn how to tap their own creativity. Students are asked to create an original piece of art, music, literature, or research.

INT 4201 Cultural Heritage Seminar (3 q.h.)

The interconnected ways in which art, music, literature, religion, and specific historical events have shaped our culture, values, and self-perceptions. Students undertake projects dealing with one or more themes included in their Cultural Heritage studies. *Prereq.* 27 q.h. in Cultural Heritage studies (see Liberal Studies program, page 96) or instructor's permission.

INT 4202 Contemporary Studies Seminar (3 q.h.)

Analysis and discussion of selected problems of the contemporary world, using analytical tools appropriate to the disciplines contained within the Liberal Studies curriculum. *Prereq.* 27 q.h. in Contemporary Studies (see Liberal Studies program, page 97) or instructor's permission.

JRN 4112 Fundamentals of Newswriting

(3 q.h.)

How to write leads, organize basic news stories, gather facts, and interview. Analyzes news values and the structure of news organizations.

JRN 4113 Newsgathering and Reporting

(3 q.h.)

Writing of multisource stories, both news and feature; public affairs reporting; advanced interviewing techniques; and legal issues. *Prereq.* JRN 4112 or equiv.

JRN 4114 News Reporting Techniques (3 q.h.)

How to write in-depth stories requiring significant research and introduction to investigative reporting. Includes libel, privacy invasion, and other legal matters affecting news media. *Prereq.* JRN 4113 or instructor's permission.

JRN 4250 Interpreting the News (3 q.h.)

The impact, both good and bad, of newspapers, television, radio, and other news media on American life. Examines how news is gathered, processed, and disseminated by the various media. "How much do we need the press as a watchdog on government?" and "Who is watching the watchdog?" are among the questions addressed.

JRN 4300 Photojournalism (3 q.h.)

How to use the camera, the negative, and the print in news or feature stories. Includes weekly photo shooting assignments and darkroom work. (Laboratory fee)

JRN 4335 Public Relations Basics (3 q.h.)

Concepts, components, and methods of public relations, including planning and research, processes of influencing public opinion, and policies concerning corporate and institutional relations with the media and various publics.

JRN 4336 Public Relations Practices (3 q.h.)

Specific practices and techniques employed in public relations, especially in relation to the handling of information and organization of activities and events. Also discusses how to define PR "targets" and how to deal with such publics as employees, stockholders, and consumers.

JRN 4337 Public Relations Problems (3 q.h.)

Research and communication techniques used to solve public relations problems and practical experience with individual PR projects, programs, and campaigns.

JRN 4349 Advertising Basics (3 q.h.)

Advertising research, planning, creative, and media functions and their interrelationships. Application of advertising principles to consumer, retail, political, and other advertising campaigns.

LEN 4100 Criminal Investigation and Case Preparation I (3 q.h.)

General investigation techniques, collection and

preservation of evidence and information, and consideration of particular crimes, such as arson, sexual offenses, larceny, burglary, robbery, forgery, and homicide.

LEN 4101 Criminal Investigation and Case Preparation 2 (3 q.h.)

The conducting of raids, surveillance, and undercover operations; methods of preparing a case for court; specialized scientific methods; and exercises involving prosecution and cross-examination techniques. *Prereq.* LEN 4100.

LEN 4102 Comparative Police Systems (3 q.h.)

Existing police systems in other jurisdictions, including an examination of the organization, administration, and practices of police agencies in the United States, Europe, and the United Kingdom.

LEN 4103 Introduction to Industrial Security (3 q.h.)

Historical, philosophical, and legal bases of security, including a survey of administrative, personnel, and physical aspects of the security field.

LEN 4107 Police-Community Relations (3 q.h.)

Role and function of police with both individuals and groups, including minority groups; police responsibilities regarding civil rights, civil disorders, and public protection.

LEN 4108 The Patrol Function I (3 q.h.)

The planning process related to the administration of the patrol function. Considers theoretical and operational aspects of various patrol systems, including the random patrol, the response force, the split force, and team policing; probability theory; and the relation between patrol and crime levels.

LEN 4109 The Patrol Function 2 (3 q.h.)

Continuation of LEN 4108, emphasizing the goals and objectives of police management models. Discussion and analysis of manpower, work load, response time, patrol communications, preventive strategies, and inputs and outputs of patrol systems evaluated in quantitative form. *Prereq.* LEN 4108.

LEN 4110 Introduction to Criminalistics I (3 q.h.)

The elements of microscopy, spectroscopy, and chemistry as applied to trace evidence in criminal investigations. Includes the responsibilities of technicians, investigators, and others.

LEN 4111 Introduction to Criminalistics 2 (3 q.h.)

Examines toxicology, serology, and procedures related to other types of physical evidence through laboratory demonstrations and practical exercises. *Prereq.* LEN 4110.

LEN 4112 The American Correctional System (3 q.h.)

The correctional field, covering probation, institutions, parole, historical developments, program content, and current problems and needs.

LEN 4115 Correctional Administration I (3 q.h.)

Correctional processes, services, standards, personnel, management principles, allocation of resources, and training of staff. Includes study of regular and special programs, volunteers, and outside contracts.

LEN 4116 Correctional Administration 2 (3 q.h.)

Further study of management principles, sentence reduction, discharge planning, and work release administration. Also, types of institutions, compacts, regional concepts, planning, organization, control and direction of corrections, and budgeting. *Prereq.* LEN 4115.

LEN 4118 Police Work with Juveniles (3 q.h.)

Role of the police in delinquency prevention, emphasizing theory, administration, control, treatment, confinement, community resources, and relationships with the public and the juvenile court.

LEN 4120 Juvenile Corrections I (3 q.h.)

Police, detention, petitions, and hearings related to juveniles. Juvenile court procedures, philosophy, and terminology and adjudication.

LEN 4121 Juvenile Corrections 2 (3 q.h.)

Social workers, probation officers, judges, psychologists, and psychiatrists in relation to juveniles; institutions; aftercare; prevention. *Prereq.* LEN 4120.

LEN 4122 Industrial Fire Prevention (3 q.h.)

Principles and practices of fire safety, including organization and management responsibility, property conservation, safeguards for construction, fire control apparatus and functions, engineering, and scientific data on fires and related perils.

LEN 4123 Retail Security (3 q.h.)

Operation of security departments, including functions of mercantile establishments; dishonest employees; shoplifters; management and public relations; receiving, shipping, and warehousing; special laws and procedures.

LEN 4125 Security Seminar (3 q.h.)

Analysis of current problems in security, such as growth patterns, salary structures, training and education, and existing weaknesses through field trips, individual study assignments, and required oral and written reports.

LEN 4126 Correctional Practices Seminar (3 q.h.)

Analysis of current problems in corrections designed to meet the needs and interests of specific groups of students, such as practitioners, supervisors, and administrators of correctional programs.

LEN 4127 Current Security Problems (3 q.h.)

Analysis of special problem areas such as security education and training, community relations, white-collar crime, drug abuse, theft control, shoplifting, document control, subversion and sabotage, protection of classified information, control of proprietary information and business espionage, labor problems, civil disturbances, and natural and preventable disasters.

LEN 4128 Victimology Seminar (3 q.h.)

Criminal-victim relationships, emphasizing victim-pre-empted crimes and compensation to victims. Considers the concept and significance of "victimology"; time, location, sex, age, and occupational factors in criminal-victim relationships; victims of murder, rape, and other violent crimes; victims of property crimes; victim typology; the public as victim; restitution and compensation to victims of crime; and the functional responsibility of the victim.

LEN 4129 Criminal Behavior Seminar (3 q.h.)

Crime and criminal behavior as a social phenomenon divided into three principal areas: sociology of law and its effect, criminal etiology and the scientific analysis of the causes of crime, and evaluation of the various rationales of detention as a crime-control factor.

LEN 4132 Administration of Justice I (3 q.h.)

Historical survey of the evaluation of justice from the earliest times, with emphasis on Western and American justice. Includes the roles played by the judiciary, stressing due process and constitutional guarantees.

LEN 4133 Administration of Justice 2 (3 q.h.)

Various groups and professions within the American justice system. Emphasizes human relations, efficiency, current trends, and the future role of the American criminal justice system. *Prereq.* LEN 4132.

LEN 4134 Civil Law in Criminal Justice I (3 q.h.)

Civil matters, such as defamation, negligence, assault and battery, false confinement, trespass, conversion, and agency relationships.

LEN 4135 Civil Law in Criminal Justice 2 (3 q.h.)

Civil matters, such as the law of contracts, bailments, domestic relations, and business relationships that should be known to and understood by law enforcement personnel. *Prereq.* LEN 4134.

LEN 4136 Criminal Law I (3 q.h.)

Major problems of criminal law as a device for controlling undesirable behavior. Includes basic questions of public policy involved in the administration of criminal justice as well as the legal principles of determining criminal liability. Considers specific crimes, including the elements of a crime, the parties to a crime, and the defenses to a crime.

LEN 4137 Criminal Law 2 (3 q.h.)

Vital constitutional and statutory concepts, including self-incrimination, search and seizure, law of arrest,

criminal procedure and responsibility, confessions, right to counsel, and conduct of trial in the district, superior, appellate, and federal courts. *Prereq.* LEN 4136.

LEN 4138 Evidence and Court Procedure I
(3 q.h.)

Rules of evidence, principles of exclusion, and evaluation and examination of evidence and proof.

LEN 4139 Evidence and Court Procedure 2
(3 q.h.)

Competency, consideration of witnesses, laws of search and seizure, court procedures, and moot court exercises. *Prereq.* LEN 4138.

LEN 4140 Fire Investigation and Arson I
(3 q.h.)

Elementary chemistry of combustion, including sources of ignition, fuels, and the nature, behavior, and toxicity of gases. Combustion properties of nonsolid fuels as opposed to solid fuels, explosions associated with fires, and the socio-economic aspects of fire, including the role of the pyromaniac and his or her physiological involvement.

LEN 4141 Fire Investigation and Arson 2
(3 q.h.)

Carbon, hydrogen, and oxygen as major elements in all fires; the flameless ignition effect; methods of fire-proofing; and the role of pyrolysis. Also considers fire patterns of structural fires, asphyxiation, and the legal aspects of arson. *Prereq.* LEN 4140.

LEN 4144 Security Administration I (3 q.h.)
Historical, philosophical, and legal bases of security operations. Includes a study of various security methods and the use of personnel, equipment, and procedures.

LEN 4145 Security Administration 2 (3 q.h.)
Organization, administration, and management of the security function, including the systems approach to security operations and the use of personnel and equipment. *Prereq.* LEN 4144.

LEN 4147 Legal Aspects of Security Operations (3 q.h.)

Areas of law relevant to the security professional, including related aspects of criminal, civil, regulatory, and labor law.

LEN 4153 Criminal Law (Intensive) (6 q.h.)
Same as LEN 4136 and LEN 4137.

LEN 4154 Evidence and Court Procedure (Intensive) (6 q.h.)
Same as LEN 4138 and LEN 4139.

LEN 4155 Civil Law in Criminal Justice (Intensive) (6 q.h.)
Same as LEN 4134 and LEN 4135.

LEN 4161 Fire Investigation and Arson (Intensive) (6 q.h.)
Same as LEN 4140 and LEN 4141.

LEN 4162 Correctional Administration (Intensive) (6 q.h.)
Same as LEN 4115 and LEN 4116.

LEN 4163 Administration of Justice (Intensive) (6 q.h.)
Same as LEN 4132 and LEN 4133.

LEN 4165 Security Administration (Intensive)
(6 q.h.)
Same as LEN 4144 and LEN 4145.

LEN 4300 Human Rights in Corrections
(3 q.h.)
Practices and problems involved in protecting human rights in the institutional environment, including legal and practical aspects.

LEN 4302 Correctional Counseling (3 q.h.)
Basic counseling concepts and principles, individual and group therapy carried on in the correctional field, and institutional services. Case studies and projects.

LEN 4305 Advanced Correctional Practices I
(3 q.h.)
Diagnosis and treatment of the drug addict and the alcoholic offender at both juvenile and adult levels; related kinds of self-abuse.

LEN 4306 Advanced Correctional Practices 2
(3 q.h.)
Correction-psychiatric facilities for the disorderly offender, including the aggressive, the assaultive, and the violent subject. Includes case studies of confined persons and their past and present environments. *Prereq.* LEN 4305.

LEN 4308 Comparative Correctional Systems
(3 q.h.)
Correctional systems and methods in selected jurisdictions. Examines organization, administration, and practices in the United States and foreign countries.

LEN 4311 Research Methods in Criminal Justice (3 q.h.)
Research project related to a specific police or correctional interest or operation, in consultation with the faculty advisor. Course meets at discretion of the instructor. Project paper required.

LEN 4312 Treatment of Offenders I (3 q.h.)
The concept of treatment and corrections, including history, classification, training, education and guidance, treatment methods, inmate society, and health and social services.

LEN 4313 Treatment of Offenders 2 (3 q.h.)
Therapy, psychiatric and psychological considerations, case studies, and evaluation of comparable methods. *Prereq.* LEN 4312.

LEN 4314 Police Supervision (3 q.h.)

The police supervisor's role in discipline and interdepartmental relations; problem handling and personnel policies; problems in supervisory relationships; and wages, grievances, morale, and safety.

LEN 4315 Criminology I (3 q.h.)

Introduction to the study of crime from the perspective of classical and contemporary criminological theories. Pays particular attention to biological, psychological, and sociological approaches to understanding crime.

LEN 4316 Criminology 2 (3 q.h.)

Continuation of LEN 4315, emphasizing the causes of crime and the relationship between law and crime. Considers the implications of prevention, rehabilitation, and treatment. *Prereq.* LEN 4315.

LEN 4317 Probation and Parole Practices I (3 q.h.)

The probation officer, pre-sentence investigation, conditions of probation, effectiveness and administrative aspects of probation and parole, methods of predicting their success, and the role of the community.

LEN 4318 Probation and Parole Practices 2 (3 q.h.)

The parole officer; conditions of parole; supervision; effectiveness; administrative relationships; role of the community, court, and law enforcement agencies; relations of probationer and parolee to rehabilitative, social, and family services; recidivism and aftercare. *Prereq.* LEN 4317.

LEN 4319 Law Enforcement Management and Planning I (3 q.h.)

Philosophy and theories of management in law enforcement and studies of organization from the administrator's viewpoint, including control, efficiency, effectiveness, and discipline.

LEN 4320 Law Enforcement Management and Planning 2 (3 q.h.)

The administrator's role, including special activities and responsibilities. Covers administrative planning; civilian personnel, including recruitment, selection, and evaluation; training; budgets; management records; interpersonal communications; auxiliary services; and evaluation of present and future management systems. *Prereq.* LEN 4319.

LEN 4322 Physical Security I (3 q.h.)

Basic foundations of security in industry, banking, transportation, utilities, and other nongovernment operations, including physical requirements and standards.

LEN 4323 Physical Security 2 (3 q.h.)

Implementation of security, including study of the intimate aspects of protection, such as alarm and surveillance devices. *Prereq.* LEN 4322.

LEN 4335 Organized Crime Seminar (3 q.h.)

The nature and problems of organized crime, its causes and effects, comparative and historic roots, and activities, organization, and economics. Considers possible solutions and the scope of techniques used in combating organized crime.

LEN 4338 Forensic Laboratory Seminar (3 q.h.)

Crime laboratory organization and use of special equipment for the analysis, interpretation, classification, and identification of physical evidence obtained in crime-scene searches. Transportation, storage, and security of physical evidence and its implications, coupled with the preparation of exhibits for courtroom presentation. *Prereq.* LEN 4111.

LEN 4340 Civil Liberties and the Police I (3 q.h.)

In-depth preparation for the officer facing the practical problems of enforcing the law without breaching the civil rights of the accused and of bystanders. Readings, lectures, discussions, and examination of cases. Constitutional interpretation and limitations are the guidelines for the course.

LEN 4341 Civil Liberties and the Police 2 (3 q.h.)

Several Supreme Court cases are followed from the time of the call through confrontation, arrest, examination in court, appeals, and direct statements about the problem by jurists of the highest court. The course concludes with the latest changes in criminal law and the Civil Rights Act. *Prereq.* LEN 4340.

LEN 4354 Law Enforcement Management and Planning (Intensive) (6 q.h.)

Same as LEN 4319 and LEN 4320.

LEN 4355 Criminology (Intensive) (6 q.h.)

Same as LEN 4315 and LEN 4316.

LEN 4356 Treatment of Offenders (Intensive) (6 q.h.)

Same as LEN 4312 and LEN 4313.

LEN 4357 Probation and Parole Practices (Intensive) (6 q.h.)

Same as LEN 4317 and LEN 4318.

LEN 4358 Advanced Correctional Practices (Intensive) (6 q.h.)

Same as LEN 4305 and LEN 4306.

LEN 4801 Honors Program I (4 q.h.)

Prereq. Program Director's approval.

LEN 4802 Honors Program 2 (4 q.h.)

Prereq. LEN 4801.

LEN 4803 Honors Program 3 (4 q.h.)

Prereq. LEN 4802.

LEN 4808 Independent Studies I (3 q.h.)

Faculty-guided research on individually selected topics relating to the criminal justice system.

LEN 4809 Independent Studies 2 (3 q.h.)

Continuation of faculty-guided research as described in LEN 4808. *Prereq.* LEN 4808.

LEN 4899 Field Work in Law Enforcement, Correctional Practices, and Security (6 q.h.)

Opportunity for students to become more familiar with their major through practice. To be arranged with Major Advisor prior to registration. *Prereq.* Major in Law Enforcement, Correctional Practices, or Security.

LIB 4310 Critical Research Tools (3 q.h.)

How to use basic reference materials to do a research project. Covers a wide variety of research tools to help students make the most effective use of available study time. Resources include dictionaries, encyclopedias, almanacs, yearbooks, atlases, newspapers, periodicals, indices, reviews, biographical sources, and newer formats, such as microfiche, computer banks, and film strips.

LIB 4321 Introduction to Reference Materials and Methods (3 q.h.)

Basic tools and methods for locating information. Includes evaluation of dictionaries, encyclopedias, gazetteers, atlases, handbooks, almanacs, directories, and indices.

LIB 4322 Reference Work in the Social Sciences (3 q.h.)

The scope and use of outstanding reference materials in the social sciences, including government publications. Includes resources from economics, education, political science, sociology, and allied fields. *Prereq.* LIB 4321 or equiv.

LIB 4323 Reference Work in the Humanities (3 q.h.)

Approaches to the solution of reference problems in the humanities, with special emphasis on literature. *Prereq.* LIB 4321.

LIB 4325 Business Research Tools (3 q.h.)

Assists the business student or professional in becoming familiar with and adept in the use of the most respected publications and information sources in the business community. Content relates to such areas as accounting, business law, computers, data bases, finance, marketing, and statistics. Reference assignments help students learn which sources to use and how to find and understand complex data.

LIB 4331 Descriptive Cataloging (3 q.h.)

Theory and practice of descriptive cataloging, introducing techniques for compiling author, corporate, and serial entries.

LIB 4332 Subject Headings and Classification (3 q.h.)

Introduction to Dewey Decimal Classification and Sears subject headings and further study of descriptive cataloging in book and nonbook materials. *Prereq.* LIB 4331 or equiv.

LIB 4333 Library of Congress Classification (3 q.h.)

The significant differences between the Library of Congress (LC) and Dewey Decimal systems of classification. Includes notes on original cataloging and techniques of classification within the LC scheme and exercises in the use of LC schedules and subject headings. *Prereq.* LIB 4331 or equiv.

LNA 4101 Elementary Arabic I (4 q.h.)

Introduction to the Arabic language and culture through speaking, reading, and some writing.

LNA 4102 Elementary Arabic 2 (4 q.h.)

Continuation of LNA 4101 with practice in elementary conversation, reading, and writing. *Prereq.* LNA 4101 or equiv.

LNA 4103 Elementary Arabic 3 (4 q.h.)

Continuation of LNA 4102, building the basic skills necessary to carry on a conversation. *Prereq.* LNA 4102 or equiv.

LNF 4101 Elementary French I (4 q.h.)

Essentials of grammar, practice in pronunciation, and progressive acquisition of a basic vocabulary and idiomatic expressions.

LNF 4102 Elementary French 2 (4 q.h.)

Continuation of grammar study, with oral and written exercises. *Prereq.* LNF 4101 or equiv.

LNF 4103 Elementary French 3 (4 q.h.)

Reading of French prose of increasing difficulty, with written and oral exercises based on the materials read and practice in conversation. *Prereq.* LNF 4102 or equiv.

LNF 4104 Intermediate French I (4 q.h.)

Review of grammar, with practice in composition and conversation. *Prereq.* LNF 4103 or equiv.

LNF 4105 Intermediate French 2 (4 q.h.)

History of French civilization, with discussions and conversation. *Prereq.* LNF 4104 or equiv.

LNF 4106 Intermediate French 3 (4 q.h.)

Intensive reading of modern French prose, with practice in conversation. *Prereq.* LNF 4105 or equiv.

LNF 4801 French Directed Study I (4 q.h.)

Directed Study Option: When a University College student is unable to continue study of an upper-level language, or when a language course needed for a degree is not scheduled at appropriate intervals, arrangements can be made to take three directed studies for a total of 12 q.h. Course numbers for French Directed Study 1, 2, 3 are LNF 4801, LNF 4802, LNF 4803; for Spanish, LNS 4801, LNS 4802, LNS 4803; and so forth. Petitions and procedural instructions are available from the Liberal Arts Program Office. *Allow at least six weeks to complete the petition process. Prereq.* 87 q.h.

LNF 4802 French Directed Study 2 (4 q.h.)
See LNF 4801.

LNF 4803 French Directed Study 3 (4 q.h.)
See LNF 4801.

LNG 4101 Elementary German I (4 q.h.)
Essentials of grammar, practice in pronunciation, and progressive acquisition of a basic vocabulary and idiomatic expressions.

LNG 4102 Elementary German 2 (4 q.h.)
The more difficult points of grammar, particularly the uses of the subjunctive mood. *Prereq.* LNG 4101 or equiv.

LNG 4103 Elementary German 3 (4 q.h.)
Reading of simple German prose, with oral and written exercises based on material read. Conversation in German is encouraged. *Prereq.* LNG 4102 or equiv.

LNG 4104 Intermediate German I (4 q.h.)
Review of grammar, with practice in composition and conversation. *Prereq.* LNG 4103 or equiv.

LNG 4105 Intermediate German 2 (4 q.h.)
History of German civilization, with discussions and conversation. *Prereq.* LNG 4104 or equiv.

LNG 4106 Intermediate German 3 (4 q.h.)
Intensive reading of modern German prose, with practice in conversation. *Prereq.* LNG 4105 or equiv.

LNG 4801 German Directed Study I (4 q.h.)
See LNF 4801.

LNG 4802 German Directed Study 2 (4 q.h.)
See LNF 4801.

LNG 4803 German Directed Study 3 (4 q.h.)
See LNF 4801.

LNH 4101 Beginning Conversational Hebrew I (4 q.h.)
Acquisition of basic oral skills by introduction of the essentials of Hebrew grammar. Includes extensive practice in pronunciation and acquisition of an idiomatic core vocabulary.

LNH 4102 Beginning Conversational Hebrew 2 (4 q.h.)
Continuation of LNH 4101, introducing Hebrew prose of moderate difficulty. *Prereq.* LNH 4101 or equiv.

LNH 4103 Beginning Conversational Hebrew 3 (4 q.h.)
Continuation of LNH 4102. Continued emphasis on conversation and on building a solid vocabulary. *Prereq.* LNH 4102 or equiv.

LNI 4101 Elementary Italian I (4 q.h.)
Essentials of grammar, practice in pronunciation, and

progressive acquisition of a basic vocabulary and idiomatic expressions.

LNI 4102 Elementary Italian 2 (4 q.h.)
Continuation of grammar study, with oral and written exercises. *Prereq.* LNI 4101 or equiv.

LNI 4103 Elementary Italian 3 (4 q.h.)
Reading of Italian prose of increasing difficulty, with written and oral exercises based on the material read and practice in conversation. *Prereq.* LNI 4102 or equiv.

LNI 4104 Intermediate Italian I (4 q.h.)
Review of grammar, with practice in composition and conversation. *Prereq.* LNI 4103 or equiv.

LNI 4105 Intermediate Italian 2 (4 q.h.)
History of Italian civilization, with discussions and conversation. *Prereq.* LNI 4104 or equiv.

LNI 4106 Intermediate Italian 3 (4 q.h.)
Intensive reading of modern Italian prose, with practice in conversation. *Prereq.* LNI 4105 or equiv.

LNI 4801 Italian Directed Study I (4 q.h.)
See LNF 4801.

LNI 4802 Italian Directed Study 2 (4 q.h.)
See LNF 4801.

LNI 4803 Italian Directed Study 3 (4 q.h.)
See LNF 4801.

LNJ 4101 Elementary Japanese I (4 q.h.)
Basic, practical Japanese, emphasizing the essentials of grammar, pronunciation, progressive acquisition of a core vocabulary, and the use of current, idiomatic expressions.

LNJ 4102 Elementary Japanese 2 (4 q.h.)
Continuation of LNJ 4101. Progressive acquisition of practical skills. *Prereq.* LNJ 4101 or equiv.

LNJ 4103 Elementary Japanese 3 (4 q.h.)
Continuation of LNJ 4102. *Prereq.* LNJ 4102.

LNL 4101 Beginning Latin I (4 q.h.)
Grammar needed for reading elementary Latin prose as well as for understanding some basic etymologies. Recommended for those interested in enriching their knowledge of English and Romance languages and those who want to read classical literature in the original.

LNL 4102 Beginning Latin 2 (4 q.h.)
Continuation of LNL 4101. *Prereq.* LNL 4101.

LNL 4103 Beginning Latin 3 (4 q.h.)
Continuation of LNL 4102. *Prereq.* LNL 4102.

LNL 4801 Latin Directed Study I (4 q.h.)
See LNF 4801.

LNL 4802 Latin Directed Study 2 (4 q.h.)
See LNF 4801.

LNL 4803 Latin Directed Study 3 (4 q.h.)

See LNF 4801.

LNN 4101 Beginning Conversational Swedish I (4 q.h.)

Acquisition of basic oral skills by introduction of the essentials of Swedish grammar, with extensive practice in pronunciation and acquisition of an idiomatic core vocabulary.

LNN 4102 Beginning Conversational Swedish 2 (4 q.h.)

Continuation of LNN 4101, introducing Swedish prose of moderate difficulty. *Prereq.* LNN 4101 or equiv.

LNN 4103 Beginning Conversational Swedish 3 (4 q.h.)

Continuation of LNN 4102. *Prereq.* LNN 4102 or equiv.

LNN 4801 Swedish Directed Study I (4 q.h.)

See LNF 4801.

LNN 4802 Swedish Directed Study 2 (4 q.h.)

See LNF 4801.

LNN 4803 Swedish Directed Study 3 (4 q.h.)

See LNF 4801.

LNS 4101 Beginning Conversational Spanish I (4 q.h.)

Acquisition of basic oral skills by introduction of the essentials of Spanish grammar. Extensive practice in pronunciation and acquisition of an idiomatic core vocabulary.

LNS 4102 Beginning Conversational Spanish 2 (4 q.h.)

Continuation of LNS 4101, introducing Spanish prose of moderate difficulty. *Prereq.* LNS 4101 or equiv.

LNS 4103 Beginning Conversational Spanish 3 (4 q.h.)

Continuation of LNS 4102. Continued stress on conversation, while building a solid vocabulary. *Prereq.* LNS 4102 or equiv.

LNS 4104 Intermediate Spanish I (4 q.h.)

Review of grammar, with practice in composition and conversation. *Prereq.* LNS 4103 or equiv.

LNS 4105 Intermediate Spanish 2 (4 q.h.)

Examination of Spanish civilization through texts of average difficulty. Intensive reading of modern prose, with occasional oral or written translation and conversation practice based on assigned readings. *Prereq.* LNS 4104 or equiv.

LNS 4106 Intermediate Spanish 3 (4 q.h.)

Examination of Spanish-American civilization through texts of average difficulty. Intensive readings of modern prose, with occasional oral or written translations and conversation practice based on assigned readings. *Prereq.* LNS 4105 or equiv.

LNS 4801 Spanish Directed Study I (4 q.h.)

See LNF 4801.

LNS 4802 Spanish Directed Study 2 (4 q.h.)

See LNF 4801.

LNS 4803 Spanish Directed Study 3 (4 q.h.)

See LNF 4801.

MGT 4101 Introduction to Business and Management I (3 q.h.)

The setting and general structure of American business, including objectives and practices affecting the American standard of living. Examines the characteristics of private enterprise and the nature and challenge of capitalism and other forms of economic enterprise. Introduces types of businesses, the structures of organizations, and the functions of management as well as what a managerial career involves, what problems must be faced, and what decisions must be reached.

MGT 4102 Introduction to Business and Management 2 (3 q.h.)

Methodologies in planning, organizing, directing, and controlling production, marketing, sales, and pricing within the American free enterprise system and in contrast to other business systems. Examines techniques for coping with the intricacies of systems management. *Prereq.* MGT 4101.

MGT 4103 Introduction to Business and Management 3 (3 q.h.)

Basic management concepts and techniques necessary to successful decision making. Emphasizes management as a continuous, active process by introducing methods of designing an organization; understanding and dealing with people; evaluating the political, social, and economic environment; and effectively planning, directing, and controlling an organization. *Prereq.* MGT 4102.

MGT 4105 Introduction to Business and Management (Intensive) (6 q.h.)

Same as MGT 4101 and MGT 4102.

MGT 4110 Survey of Business and Management (4 q.h.)

Introduction to the setting and general structure of American business, the characteristics of private enterprise, and the nature and challenge of capitalism and other forms of economic enterprise. Covers the forms of business, organizational structure, and functions of management. Through lectures and class discussion, students are given an overview of the methodologies used in planning, organizing, directing, and controlling the functions of production, marketing, sales, pricing, and finance. *For Alternative Freshmen only.*

MGT 4310 Project Management Process: Planning and Implementation (formerly Project Planning and Control) (3 q.h.)

The entire process of implementing a project, from project definition to the evaluation of feasibility, scheduling, and financial and budgetary factors. Manage-

ment techniques and requirements are used in case analyses, along with the concept of using computer software to help oversee projects. *Prereq.* IM 4301.

MGT 4320 Managing Change (3 q.h.)

Application of managerial concepts and practices to real-world situations with policy or resource constraints. Explores decision making related to the impact of change on the organization and its personnel and develops a conceptual framework for handling change in one's own business career. *Prereq.* MGT 4103.

MGT 4323 Motivation Management (3 q.h.)

Designed to help students differentiate between the managerial position as such and a leadership role, evaluating the impact of leadership and management styles on human behavior. Introduces and analyzes important motivation concepts through study of the working environment and the processes that influence both performance and outcome. Includes readings from contemporary behavioral scientists and individual research projects, with reports for group discussion and analysis. *Prereq.* MGT 4103.

MGT 4324 Essentials for Managers of Small Businesses (2 q.h.)

Essentials of small business management, including employee motivation, financial planning, marketing, and strategic planning.

MGT 4325 Entrepreneurship and Small Business Management I (3 q.h.)

Introduction to the major aspects of managing a small business. Covers the basic elements of entrepreneurship and the initial phases of planning, including legal, financial, marketing, organizational-control, and management functions. *Prereq.* MGT 4102.

MGT 4326 Entrepreneurship and Small Business Management 2 (3 q.h.)

Continuation of MGT 4325 for advanced business students. Emphasizes developing business plans, analyzing performance, identifying problems, maintaining financial health, and planning for the future. Includes discussion of actual cases involving small businesses. *Prereq.* MGT 4325.

MGT 4327 Entrepreneurship and Small Business Management (Intensive)

(6 q.h.)
Same as MGT 4325 and MGT 4326. *Prereq.* MGT 4102.

MGT 4330 Small Business Management (3 q.h.)

For small business entrepreneurs or persons interested in running a small business. Covers fundamental business concepts, including ownership forms; ongoing market research, capitalization, and management and operating issues; personnel and benefits; risk management; tax considerations; operating finances; and small business strategic positioning. Generally offered in six half-day sessions.

MGT 4350 Business Policy I (3 q.h.)

For advanced students building on all previous management courses and on numerous functional and procedural courses. Examines the total management process from formulating to implementing strategy and discusses the development of corporate objectives, plans, and policies, emphasizing the interaction between the enterprise and its environment. The economic and social responsibilities of business and managers are also considered. *Prereq.* 100 q.h. and completion of all core courses in business.

MGT 4351 Business Policy 2 (3 q.h.)

Organizational and administrative methods for converting plans into achievements. Explores concepts of strategic planning and implementation from the perspective of the general manager, with attention to top management functions, responsibilities, styles, values, and organizational relationships. Includes cases from profit and nonprofit enterprises of various types. *Prereq.* MGT 4350.

MGT 4352 Business Policy (Intensive) (6 q.h.)

Same as MGT 4350 and MGT 4351. *Prereq.* 100 q.h.

MGT 4355 Manager and Society (3 q.h.)

For managers, potential managers, and others interested in the national and international issues confronting business and industry in their relationships with governments, societies, and individuals. Includes issues of changing work environments and the variety of influences and pressures that need to be taken into account when making socially responsible business decisions. *Prereq.* MGT 4350.

MGT 4356 International Business Management and Operations (3 q.h.)

Principles and practices of international business, comparing domestic and international business activities, responsibilities, and influences. Explores the economic, social, political, and legal contexts of conducting business in a multinational environment and examines how the "foreign" factor in the business equation influences behavior. *Prereq.* MGT 4350.

MGT 4358 Contemporary Management Issues (3 q.h.)

Local, regional, national, and international business and management issues affecting today's management decisions. Includes upcoming changes in our economic system and the economy; corporate culture; social responsibility; ethics; worker needs, motivation, and satisfaction; demographics; and management-labor interactions. *Prereq.* MGT 4103.

MGT 4360 Management Seminar I (3 q.h.)

Capstone course requiring individual and/or group investigation and analysis of a substantive management issue. Projects should involve broad, interdisciplinary knowledge and experience, use a variety of research techniques, and be original in analysis and conclusions. Topics to be selected with the advice and approval of the instructor. *Prereq.* MGT 4351.

MGT 4361 Management Seminar 2 (3 q.h.)

Continuation of MGT 4360. *Prereq.* MGT 4360.

MGT 4362 Advanced Management Seminar (3 q.h.)

Continuation of group projects from MGT 4360 and MGT 4361. The project must be of major management significance, involving research of a management issue, a management audit, or an organizational analysis, usually of a real company. Enrollment is limited; both enrollment and the project must be approved by the Area Consultant and the Program Director. *Prereq.* MGT 4361.

MIS 4101 Introduction to Data Processing and Information Systems I (3 q.h.)

Introduction to data processing and computers, including an overview of data processing history, business data processing concepts, data processing organization, computer hardware, the internal representation of data, and data communications concepts.

MIS 4102 Introduction to Data Processing and Information Systems 2 (3 q.h.)

Continuation of MIS 4101, concentrating on software and systems. Includes the systems-development life cycle, programming tools and program preparation, the use of computers for specific business applications, data-base management systems, and high-level programming and planning languages. Also introduces computer programming in BASIC. *Prereq.* MIS 4101.

MIS 4103 Introduction to Data Processing and Information Systems (Intensive) (6 q.h.)

Same as MIS 4101 and MIS 4102.

MIS 4220 Introduction to Programming in COBOL (3 q.h.)

Fundamentals of computer programming, along with COBOL (Common Business Oriented Language) and its divisions, data file structures, and verb actions. Students prepare and test several programs using the University computer system. *Prereq.* MIS 4102 or MIS 4103.

MIS 4221 COBOL Programming I (3 q.h.)

Beginning computer problem solving and programming using COBOL. Includes structured flow-charting and programming techniques, use of an editor for program generation, input/output record layouts, and basic concepts, such as COBOL divisions and verbs. Students prepare and test several programs using the University computer system. *Prereq.* MIS 4102 or MIS 4103.

MIS 4222 COBOL Programming 2 (3 q.h.)

Continuation of MIS 4221. Includes logic control breaks, creation of multipage reports, sign and class tests, verification of input data, and table handling (subscription and indexing). Students prepare and test

several programs using the University computer system. *Prereq.* MIS 4221.

MIS 4223 COBOL Programming 3 (3 q.h.)

Continuation of MIS 4222, including advanced programming techniques, such as the internal sort facility and indexed file processing. Students prepare and test several programs using the University computer system. *Prereq.* MIS 4222.

MIS 4225 COBOL Programming (Intensive) (9 q.h.)

Same as MIS 4221, MIS 4222, and MIS 4223. *Prereq.* MIS 4102 or MIS 4103.

MIS 4230 End User Software (3 q.h.)

The large and rapidly growing collection of software geared toward the needs of the nontechnical end user. Includes discussion of various software packages, such as spread sheets, data bases, and graphics, for use on both mainframe and personal computers. *Prereq.* MIS 4102.

MIS 4235 Advanced COBOL Programming (3 q.h.)

Several kinds of programming disciplines for the COBOL programmer. Techniques include STRING and UNSTRING; CALL subroutines; tab handling with 1, 2, and 3 dimensions; indexed sequential access methods (SAM) for file processing; DEBUG; communications; and COPY library. *Prereq.* MIS 4223 or MIS 4225.

MIS 4240 Introduction to Programming in BASIC (3 q.h.)

Stand-alone introduction to computer programming using BASIC, one of the most popular programming languages for both personal and mini-computers. Students write, debug, and run a number of programs on the computer. *Prereq.* MIS 4102.

MIS 4241 Programming in BASIC I (3 q.h.)

Introduction to computer programming using BASIC. Includes arithmetic operators, variables, expressions, arrays, functions, and formatted printing. Students write, debug, and run a number of programs on the computer. *Prereq.* MIS 4102.

MIS 4242 Programming in BASIC 2 (3 q.h.)

Continuation of MIS 4241, covering more sophisticated BASIC programming techniques. Includes subroutines, nested loops, sorting, and file handling. Students write, debug, and run a number of programs on the computer. *Prereq.* MIS 4240 or MIS 4241.

MIS 4250 FORTRAN Programming I (3 q.h.)

Introduction to computer programming using FORTRAN, a high-level language used primarily in scientific applications. Includes variables, constants, expressions, arithmetic operations, and looping. Students write, debug, and run a number of programs on the computer. *Prereq.* MIS 4102.

MIS 4251 FORTRAN Programming 2 (3 q.h.)

Continuation of MIS 4250, covering more complex FORTRAN programming. Includes arrays, functions, and subroutines. Students write, debug, and run a number of programs on the computer. *Prereq.* MIS 4250.

MIS 4252 FORTRAN Programming 3 (3 q.h.)

Continuation of MIS 4251, emphasizing applications and case studies. Students write a series of programs for scientific and business problems to gain proficiency in the FORTRAN language. Typical topics include simulation, sorting and merging, plotting, and financial analysis. Students write, debug, and run a number of programs on the computer. *Prereq.* MIS 4251.

MIS 4253 FORTRAN Programming (Intensive) (9 q.h.)

Same as MIS 4250, MIS 4251, and MIS 4252. *Prereq.* MIS 4102.

MIS 4260 Assembly Programming I (3 q.h.)

Introduction to the VAX-11 Assembler running under the VMS operating system. Includes the binary representation of instructions and data, looping, instruction modification, indexing, indirect addressing, and data retrieval. Includes a brief survey of Assembly languages in general. *Prereq.* Demonstrated familiarity with any currently available computer language.

MIS 4261 Assembly Programming 2 (3 q.h.)

Continuation of MIS 4260. Includes addressing structures, floating-point techniques, coding, use of macro instructions, input-output routines, use of the operating system for job scheduling resource allocation, and file handling. *Prereq.* MIS 4260.

MIS 4262 Assembly Programming 3 (3 q.h.)

Continuation of MIS 4261. Includes advanced use of the operating system, divide independent file handling, and blocked and unblocked file manipulation. *Prereq.* MIS 4261.

MIS 4270 PASCAL Programming I (3 q.h.)

Introduction to computer programming using the PASCAL language. Includes arrays of records, text files, record files, and procedures and functions. Students write, debug, and run a number of programs on the computer. *Prereq.* MIS 4102.

MIS 4271 PASCAL Programming 2 (3 q.h.)

Continuation of MIS 4270, covering more sophisticated PASCAL features. Includes multidimensional arrays, recursion, file sorting and merging techniques, sets, and structures. Students write, debug, and run a number of programs on the computer. *Prereq.* MIS 4270.

MIS 4273 PC DOS and Assembly (3 q.h.)

Introduction to the Disk Operating System (DOS), a collection of programs that manages the activities among personal computer components. The Personal Computer (PC) Assembly language is also discussed.

Students have the opportunity to write a small Assembly language routine and one or more DOS batch routines. *Prereq.* MIS 4102.

MIS 4276 Programming in C (3 q.h.)

Introduction to programming in C, originally developed at Bell Laboratories and most notably associated with the UNIX operating system. Students learn how to write programs in C and solve specific problems using the University's computer system. *Prereq.* Knowledge of at least one other programming language.

MIS 4280 Computer Operating Systems I (3 q.h.)

For those familiar with data processing equipment and interested in developing, evaluating, and using systems programs. Examines the full range of features available in a variety of computer operating systems in terms of structure and form. Compares and presents operating systems implementation techniques employed by different computer manufacturers, with emphasis on their value as tools for application program development. References are generally to IBM operating systems, but also to other manufacturers, including Digital, Data General, and various personal computer manufacturers. *Prereq.* MIS 4220 or MIS 4221.

MIS 4281 Computer Operating Systems 2 (3 q.h.)

Building on concepts and techniques presented in MIS 4280, introduces distributed systems and networking software, a variety of data base systems, and the UNIX operating system. Includes discussions of local and wide-area networking systems and operating systems features. Expands data management as an operating systems feature to include data-base systems available from various computer manufacturers and software suppliers. *Prereq.* MIS 4280.

MIS 4301 Structured Systems Analysis and Design I (3 q.h.)

Systems analysis and design cycle, with emphasis on the analysis phase. Includes the history and life cycle of business information systems, the role of the systems analyst, analytical tools useful to the systems study process, development of feasibility studies, and presentation of study phase findings. *Prereq.* MIS 4102.

MIS 4302 Structured Systems Analysis and Design 2 (3 q.h.)

Continuation of MIS 4301, emphasizing the design phase. Includes detailed systems design procedures and techniques, system testing, specification and procedure writing, documentation, design of auditing and control procedures, performance measurement techniques, hardware and software selection and planning, and project management. *Prereq.* MIS 4301.

MIS 4305 Structured Systems Analysis and Design (Intensive) (6 q.h.)

Same as MIS 4301 and MIS 4302.

MIS 4307 Communications and Networking

(3 q.h.)

Communications, networking, and distributed processing approached from the user's point of view rather than the designer's. Includes the economics of distributed processing, communications concepts, local-area networks, and vendor selection. *Prereq.* MIS 4302.

MIS 4340 Mini-Computers in Business I

(3 q.h.)

Relevant to non-MIS business majors as well as students with a systems or EDP focus. Includes analysis of cost/performance; systems consideration of mini-computers versus alternatives and their role in applications such as time sharing; intelligent terminals; data entry and gathering; and data communications. Emphasizes evaluation of mini-computers as cost-effective elements of a business system. *Prereq.* MIS 4220 or MIS 4221.

MIS 4341 Mini-Computers in Business 2

(3 q.h.)

Development of systems specifications, functional configurations, systems tradeoffs, site preparation, and maintenance considerations. Includes detailed analysis of systems through specific case studies related to business applications. *Prereq.* MIS 4340.

MIS 4345 Data-Base Management Systems

(3 q.h.)

Introduction to the data-base approach to design of integrated information applications. Covers the three methods of data-base design; data structures; diagramming; data definition languages; data manipulation languages; data-base implementation and evaluation; and the role of the data-base administrator. *Prereq.* MIS 4222, MIS 4230, and MIS 4302.

MIS 4348 Information Resource Management

(3 q.h.)

Advanced information systems management, emphasizing planning, organizing, and controlling the corporate information resource. Includes personnel career planning, turnover, facilities and capacity planning, the user interface, standards development, RFP generation and vendor selection, hardware and software conversion problems, and disaster recovery. *Prereq.* MIS 4345.

MIS 4350 Auditing Data Processing (3 q.h.)

EDP audit techniques, programming, and operations, emphasizing EDP standard practices, procedures, documentation, and safety and security. Defines EDP business risks and related exposures, such as fraud, embezzlement, misuse or destruction of company assets, and business interruption. Also discusses the EDP portion of accounting requirements of the Foreign Corrupt Practices Act of 1977. Course content is oriented toward EDP managers, internal auditors, and public accountants. *Prereq.* MIS 4102.

MIS 4355 Information Processing in Medicine

(3 q.h.)

Nontechnical survey of the impact and potential of computers in medicine, including medical records, clinical reporting systems, automated laboratories, on-line monitoring, research needs, and medical administration requirements. Analyzes the content and interactions of medical information subsystems and the implications of computerization of various medical activities. Examines equipment selection and organizational considerations. *Prereq.* MIS 4101.

MIS 4360 Computer Privacy and Security

(3 q.h.)

Threats posed by and to modern electronic computers and their users. Includes a review of the issue of privacy and approaches, techniques, and tools used to safeguard computers. Uses actual case studies of computer abuse. *Prereq.* MIS 4102.

MIS 4385 Applied MIS Development Project

(3 q.h.)

Capstone systems course integrating knowledge and abilities gained through other computer-related courses in the curriculum, within a comprehensive systems development project. *Prereq.* MIS 4348.

MKT 4301 Introduction to Marketing I (3 q.h.)

The planning necessary for effective marketing of consumer and industrial products and services in both commercial and nonprofit organizations. Includes an introduction to planning related to products, pricing, promotion, and distribution.

MKT 4302 Introduction to Marketing 2 (3 q.h.)

Continuation of MKT 4301, emphasizing applications of marketing theories and concepts. *Prereq.* MKT 4301.

MKT 4304 Introduction to Marketing (Intensive) (6 q.h.)

Same as MKT 4301 and MKT 4302.

MKT 4310 Advertising and Sales Promotion Management I (3 q.h.)

Advertising and sales promotion techniques as communications elements within a marketing strategy. *Prereq.* MKT 4302.

MKT 4311 Advertising and Sales Promotion Management 2 (3 q.h.)

Continuation of MKT 4310. Case studies and projects provide training in the development of creative advertising and promotion strategies and in the use of such communications media as television, radio, and print. *Prereq.* MKT 4310.

MKT 4312 Advertising and Sales Promotion Management (Intensive) (6 q.h.)

Same as MKT 4310 and MKT 4311. *Prereq.* MKT 4302.

MKT 4315 Sales Management I (3 q.h.)

The sales force as an element of marketing strategy. Includes selection, training, development, organization, and supervision of the sales force. *Prereq.* MKT 4302.

MKT 4316 Sales Management 2 (3 q.h.)

Continuation of MKT 4315, emphasizing the supervision and evaluation of the sales force. Also examines the role of personal selling within various marketing programs. Extensive use of case studies. *Prereq.* MKT 4315.

MKT 4317 Sales Management (Intensive)

(6 q.h.)

Same as MKT 4315 and MKT 4316.

Prereq. MKT 4302.

MKT 4320 Marketing Management I (3 q.h.)

Advanced case-method course designed to help develop the ability to analyze and make decisions about problems involving the creation, distribution, and sale of goods and services. Emphasizes demand analysis and the development of product, pricing, promotion, and distribution policies. Includes information on how to establish and control marketing budgets. *Prereq.* MKT 4301.

MKT 4321 Marketing Management 2 (3 q.h.)

Continuation of MKT 4320, emphasizing the implementation of marketing strategy, the development of integrated marketing programs, and the role of the marketing manager. *Prereq.* MKT 4320.

MKT 4322 Marketing Management (Intensive) (6 q.h.)

Same as MKT 4320 and MKT 4321. *Prereq.* MKT 4301.

MKT 4330 Marketing Research I (3 q.h.)

Use of marketing research in planning and evaluating marketing activities and in formulating marketing decisions. Introduces marketing information systems, primary and secondary research, quantitative and qualitative research, sampling techniques, and measurement processes. *Prereq.* MKT 4301.

MKT 4331 Marketing Research 2 (3 q.h.)

Techniques of data collection, processing, and analysis, emphasizing the reporting of research findings; using market research for demand measurement and forecasting; product research; advertising research; and test marketing. *Prereq.* MKT 4330.

MKT 4335 Public Relations I (3 q.h.)

Introduction to the basic principles, purposes, and practices of public relations in both commercial and nonprofit organizations. Emphasizes organization, research, and writing fundamentals.

MKT 4336 Public Relations 2 (3 q.h.)

Continuation of MKT 4335, emphasizing the development of public relations programs for specific publics. *Prereq.* MKT 4335.

MKT 4337 Introduction to Advertising (3 q.h.)

For nonbusiness majors, although business majors may take the course. Focuses on advertising, sales promotion, public relations, publicity, and personal selling as important elements in the marketing process. Also examines the ethical, social, and economic aspects of advertising and promotion.

MKT 4340 Retail Management I (3 q.h.)

Concepts and techniques of store operations and merchandise management. Focuses on the activities and contributions of various retailing institutions, such as independents, chains, dealerships, specialty stores, supermarkets, discount stores, and franchises. Also includes retail management, retail profit and loss, starting a retail business, store location, store planning, and the retail organization. *Prereq.* MKT 4301.

MKT 4341 Retail Management 2 (3 q.h.)

Continuation of MKT 4340, emphasizing store operations; merchandising planning, control, and management; pricing; buying; sales promotion; customer service; retail accounting; and expense management. *Prereq.* MKT 4340.

MKT 4352 Professional Selling Skills (Intensive) (6 q.h.)

Opportunity to develop effective selling skills. Examines the customer buying process and the company sales process. Discusses prospecting, preparation, presentation, and post-sale activities and introduces advanced selling techniques, such as team selling. Focuses on situations where personal selling is a major element of marketing strategy, such as in industrial-product, professional-service, and high-technology marketing. *Prereq.* MKT 4302.

MKT 4355 High-Technology Marketing (3 q.h.)

The company's marketing function in transforming technology into products. Discusses planning for product innovation, linkages between marketing and engineering, and communications strategies for marketing high-technology products. *Prereq.* MKT 4302.

MKT 4358 Marketing and Sales Seminar (3 q.h.)

Capstone marketing elective focusing on the formulation and implementation of overall marketing strategy. *Prereq.* MKT 4331.

MLS 4301 Medical Laboratory Science Orientation (2 q.h.)

Scope, responsibilities, opportunities, and educational requirements for the medical laboratory science professions.

MLS 4321 Hematology (1 cl., 3 lab., 3 q.h.)

Basic hematological techniques, including discussion of the differential smear and observation of the normal morphology of human red cells, white cells, and platelets. *Prereq.* BIO 4104 or equiv. Not open to medical technology or hematology majors. (Laboratory fee)

MLS 4322 Morphologic Hematology I

(1 cl., 3 lab., 3 q.h.)

Morphologic and etiologic classification of the anemias. Related diagnostic tests are discussed. *Prereq.* HMG 4425 or equiv. (Laboratory fee)

MLS 4323 Morphologic Hematology 2

(1 cl., 3 lab., 3 q.h.)

Studies of pathologic and physiologic deviations of the white cells series as observed in leukemias and infections. Some animal hematology is included. *Prereq.* MLS 4322 or equiv. (Laboratory fee)

MLS 4341 Epidemiology I (3 q.h.)

Basic concepts in epidemiology, the distribution in determinants of diseases, and injuries in human populations. Descriptive and analytical epidemiology studies are included.

MLS 4342 Epidemiology 2 (3 q.h.)

Microbiological distributions in determinants of infectious diseases; hospital epidemiology.

MLS 4352 Basic MLS Electronics and Instrumentation (2 q.h.)

Electricity, with coverage of introductory electronic circuits. Emphasizes medical laboratory instrumentation and related electrical processes of measurement.

MLS 4365 Quality Control (3 q.h.)

Development of quality control programs in each medical laboratory specialty. Includes applications of statistical methods to medical laboratory quality control programs.

MLS 4381 Seminar in Medical Technology (3 q.h.)

Current topics in medical technology. Includes required readings and presentations by students; guest lectures. *Prereq.* Instructor's permission.

MLS Courses at Basic College Tuition Rate

Course descriptions for medical laboratory science courses numbered MLS 1... are available from the College of Pharmacy and Allied Health Professions, 206 Mugar Building.

MS 4325 Introduction to Modeling and Simulation (3 q.h.)

Modeling as a method for gaining insight into the underlying mathematical structure of business problems. Discusses specific modeling techniques, such as linear programming, PERT-CPM, and simulation. *Prereq.* MTH 4111.

MS 4332 Statistical Quality Control (3 q.h.)

Practical course in analytical methods modern quality controls. Emphasizes the application of basic statistical controls in the industrial environment. Includes control charts, statistical tolerancing, acceptance sampling techniques, life testing, and reliability concepts. *Prereq.* ECN 4251.

MS 4333 Management of Quality Control

(3 q.h.)

Management practices of modern quality control and the different approaches to optimizing quality. Includes organizational strategies, economics of quality, internal and external quality, and management of long-term quality and reliability. *Prereq.* MS 4332.

MS 4334 Advanced Quality Control (3 q.h.)

Quality control topics of current interest. Typical subjects include Asian quality methods, advanced process capability techniques, use of computers in quality control, and integration of quality and reliability programs. *Prereq.* MS 4333.

MS 4335 Principles of Material Inspection

(3 q.h.)

Bridges the gap between manufacturing and data analysis, with emphasis on the measuring process. In-class labs provide hands-on training in the use of a wide variety of mechanical measuring devices. Lectures demonstrate the fundamental measuring principles involved and illustrate their extension to all measuring processes.

MS 4336 Industrial Experimentation (3 q.h.)

Practical techniques for data collection that can greatly extend students' problem-solving skills. Includes instruction in extracting maximum information from small samples and avoiding many common data-analysis pitfalls. Other topics include randomized tests, multi-level tests, two-level multi-factor tests, and fractional tests. *Prereq.* ECN 4251 or equiv.

MS 4337 Principles of Quality Assurance

(3 q.h.)

The modern quality function from its beginnings in product design to vendor selection, incoming inspection, monitoring of the manufacturing process, final product testing, and customer acceptance. Includes defining quality, quality organization, sampling plans, control charts, and quality assurance reporting.

MTH 4001 Basic Mathematics I (3 q.h.)

Review of elementary algebra, including algebraic expressions and operations, equations, and word problems. *Credit for this course cannot be applied to School of Engineering Technology degree programs.*

MTH 4002 Basic Mathematics 2 (3 q.h.)

Further review of mathematics, including operations with polynomials, factoring, fractional expressions, and word problems. *Credit for this course cannot be applied to School of Engineering Technology degree programs.* *Prereq.* MTH 4001.

MTH 4081* Introduction to Mathematics I

(4 q.h.)

Comprehensive review of high school algebra, including first-degree equations, factoring, fractions, fractional equations, ratio and proportion, word problems, and concepts of plane geometry. *Credit for this course cannot be applied to the Associate in Engineering, Associate in Science, or the Bachelor of Engineering Technology degree program.*

MTH 4082* Introduction to Mathematics 2

(4 q.h.)

Algebraic operations with complex fractions, mixed expressions, square roots, radicals, quadratic equations, simultaneous equations, graphs, and fractional zero and negative exponents; the geometry of the right triangle; areas of polygons and circles; and loci problems. *Credit for this course cannot be applied to the Associate in Engineering, Associate in Science, or the Bachelor of Engineering Technology degree program.* Prereq. MTH 4081*.

MTH 4083* Applied Mathematics and Statistics (3 q.h.)

Use of mathematics as a guide for concise thinking and the application of mathematical methods to highlight significant data. Includes the use of elementary analytical models to test and evaluate hypotheses, the role of change in physical phenomena, the importance of the use of a relevant statistical model, and methods for the selection of a data base. Prereq. MTH 4082* or equiv.

MTH 4107* College Algebra I (4 q.h.)

Fundamental algebraic operations, complex numbers, radicals and exponents, functions, linear and quadratic equations, irrational equations, inequalities, variation, and roots of polynomial equations. Prereq. Math Placement Test or MTH 4082*.

MTH 4108* Introduction to Calculus (4 q.h.)

Logarithms, trigonometric functions of angles in degrees and radians, trigonometric identities and equations, right triangles, oblique triangles, complex numbers in trigonometric form, systems of equations, and determinants. Prereq. MTH 4107* or MTH 1107.

MTH 4110 Mathematics I (3 q.h.)

The real number system, exponents, polynomials, factoring, radicals, algebraic fractions, complex fractions, linear equations, and word problems. Prereq. *One year of high school algebra or its equiv. A placement test is given during the first class meeting. Students who obtain an unsatisfactory score on this test are advised to enroll in MTH 4001 instead for additional preparation.*

MTH 4111 Mathematics 2 (3 q.h.)

Linear inequalities, letter equations, quadratic equations and related problems, graphs and functions, and systems of equations. Prereq. MTH 4110.

*This is a School of Engineering Technology course, offered at a different tuition rate from that of University College.

MTH 4112 Mathematics 3 (3 q.h.)

Exponential and logarithmic functions, sequences, and series. Introduction to calculus. Prereq. MTH 4111.

MTH 4113 Mathematics (Intensive) (9 q.h.)

Same as MTH 4110, MTH 4111, and MTH 4112.

MTH 4114 Mathematics I and 2 Combination (6 q.h.)

Same as MTH 4110 and MTH 4111.

MTH 4120* Calculus I (4 cl., 4 q.h.)

Plane analytic geometry; differentiation of algebraic functions; rate, motion, and maximum and minimum problems; deviations of high order; curve sketching; basics in functions, limits, and continuity. Prereq. MTH 4108* or MTH 1108.

MTH 4121* Calculus A (4 cl., 4 q.h.)

Applications of derivatives to curvesketching; antidifferentiation; the definite integral, with applications; calculus of nonalgebraic functions, including logarithmic, exponential, and trigonometric; calculus of inverse trigonometric functions; techniques of integration; indeterminate forms; L'Hospital's rule. Prereq. MTH 4120* or MTH 1140.

MTH 4130 Calculus for Nonengineers I

(3 q.h.)

Introductory calculus course for students in liberal arts, business administration, and other nonengineering curricula. Fundamentals of differential calculus, rules of differentiation, rates of change, graph sketching, and growth and decay function. Prereq. MTH 4112 or equiv.

MTH 4131 Calculus for Nonengineers 2

(3 q.h.)

Applications of differential calculus, including problems in optimization, velocity and acceleration, compound interest, population growth, and the fitting of equations to data. Introduction to integral calculus, areas, average values of functions, marginal cost and profit, and depreciation. Prereq. MTH 4130.

MTH 4132 Calculus for Nonengineers 3

(3 q.h.)

Calculus of trigonometric functions, techniques of integration, numerical methods, and differential equations. Applications include pricing, allocation of funds, present value of an investment, manufacturing efficiency, and product reliability. Prereq. MTH 4131.

MTH 4140 Mathematics for Business Management I (3 q.h.)

Mathematics topics applicable to business management, such as linear equations and inequalities, matrix algebra, linear programming, sets, and counting techniques. Prereq. MTH 4112 or equiv.

MTH 4141 Mathematics for Business**Management 2** (3 q.h.)

Business applications of probability, decision theory, Markov chains, game theory, and competitive analysis.

Prereq. MTH 4140.

MTH 4143 Mathematics for Business**Management (Intensive)** (6 q.h.)

Same as MTH 4140 and MTH 4141.

MUS 4100 Introduction to Music (3 q.h.)

Selected works from earliest times to contemporary styles. Primarily a survey and listening course, emphasizing styles, basic theory, forms, and the historical, social, and artistic periods each work represents.

MUS 4103 Music and Society (formerly Music as a Means of Social Expression) (3 q.h.)

The artist's involvement with the recurring social themes of self-image, the search for peace and understanding, personal relationships, and others. Examines paintings and literary works in addition to works by Beethoven, Schoenberg, Britten, and selected jazz composers.

MUS 4105 Music of the U.S.A. (3 q.h.)

American music from Puritan psalm singing to the present. Covers folk music of ethnic origin, concert music, ragtime, jazz, and contemporary styles.

MUS 4106 Women in Music (3 q.h.)

The historical role of women in music, as composers, performers, patrons, and inspirations.

MUS 4110 Music in Popular Culture (3 q.h.)

Investigation of American attitudes toward culture, art, and beauty through consideration of contemporary popular music. Compares the different styles of pop music (jazz, rock, MOR, and R&B) and traces their evolution. Examines the manipulation of public tastes by large corporations for commercial purposes.

MUS 4111 Rock Music (3 q.h.)

History of rock music from its origins in American blues and other styles through the popular music of the 1950s, the political styles of the 1960s, and the diverse trends of the 1970s. Emphasizes the formative years of rock.

MUS 4112 Jazz (formerly Jazz Evolution and Essence) (3 q.h.)

Jazz, from its origins in New Orleans to the avant-garde experiments of today. Includes analysis of the rhythmic, harmonic, instrumental, and stylistic characteristics of jazz. Covers the works of such creative jazz artists as Armstrong, Beiderbecke, Parker, Ellington, and Coltrane.

MUS 4120 History of Musical Styles (3 q.h.)

Chronological examination of Western music, including its role in society and the contributions of influential

composers. Reviews representative works from each period, with music by Bach, Handel, Haydn, Mozart, Beethoven, Brahms, Berlioz, Wagner, Mahler, and Stravinsky.

MUS 4121 Medieval and Renaissance Music (3 q.h.)

Development of sacred and secular monophony, vocal and instrumental works, and polyphonic music from their beginnings to about 1600.

MUS 4122 Music of the Baroque (3 q.h.)

The period of the emergence of the orchestra, the chorus, and the virtuoso performer and the development of the oratorio, opera, concerto, and symphony in the works of Monteverdi, Corelli, Vivaldi, Handel, and J. S. Bach.

MUS 4123 Music History of the Classical Period (3 q.h.)

Study of changing musical styles from Stamitz and the Mannheim School through the works of Haydn, Mozart, and early Beethoven.

MUS 4124 Music History of the Romantic Era (3 q.h.)

Musical styles of the nineteenth century, including the role of music and the musician in the changing social, economic, political, and cultural structure of Europe. Analyzes music by Beethoven, Schubert, Berlioz, Brahms, Verdi, and Wagner.

MUS 4125 Music History of the Twentieth Century (3 q.h.)

The diversity of styles from Debussy through Stravinsky, Schoenberg, Bartok, and Hindemith and more recent developments, including *musique concrete*, chance music, and electronic music.

MUS 4130 The Symphony (3 q.h.)

The symphony as the major genre in the Classical, Romantic, and contemporary periods. Works by Haydn, Mozart, Beethoven, Schumann, Tchaikovsky, Brahms, and Sibelius.

MUS 4132 The World of Opera (3 q.h.)

Opera as a dramatic form, including discussion of aria, recitative, ensemble, and other basic elements. Considers numbers opera, music drama, and *Singspiel* and such composers as Mozart, Wagner, Verdi, and Puccini.

MUS 4133 Great Choral Literature (3 q.h.)

Sacred and secular choral literature from medieval to contemporary times.

MUS 4136 Music and Art (formerly European Music and Art) (3 q.h.)

How European composers used the works of Spanish, English, and German painters as inspiration for their musical scores. Analyzes European museum paintings and their musical counterparts to give students an understanding of the broad influence of art on musical composition.

MUS 4137 Music of the Dance (3 q.h.)

The world of the dance, with emphasis on the creative art of ballet. Probes the dynamic qualities of music for the dance and the people who brought it to its present position as a fusion of all the arts.

MUS 4138 American Musical Theatre (3 q.h.)

Historical survey and analytical study of musical shows. Students attend performances and write critical reviews.

MUS 4140 Life and Works of Mozart (3 q.h.)

Mozart's musical development from child prodigy to mature artist, traced from his own letters and from biographies. Includes analysis of many of his major works, including operas, symphonies, concertos, and chamber music.

MUS 4141 Life and Works of J. S. Bach (3 q.h.)

The genius who summed up the Baroque era and whose every note reflected his profoundly humanistic approach to religion. Works examined include large choral masterpieces, such as the *St. Matthew Passion*, the *Brandenburg Concertos*, the *Well-Tempered Clavier*, and the *Suites*.

MUS 4144 Life and Works of Debussy (3 q.h.)

Debussy's impressionist music as the turning point toward modern trends. Studies much of his work for piano, orchestra, and opera, including *Suite Pour le Piano*, *Suite Bergamasque* ("Clair de Lune"), *Images* for piano and orchestra, *Nocturnes*, *La Mer*, and the opera *Pelleas and Melisande*.

MUS 4145 Life and Works of Beethoven

(3 q.h.)

The complex personality and art of this major figure, including his relation to the turbulent times in which he lived and his role in Classical and Romantic music.

MUS 4160 Music Therapy (3 q.h.)

Use of music as a therapeutic medium, designed for the musician and nonmusician alike. Course is experimental in nature and covers such topics as music language and the brain, music and special populations, and music and relaxation.

MUS 4165 The Music Industry (3 q.h.)

Business-related areas of the music industry. Includes the structure of the record industry and music publishing world, the function of performing rights organizations (ASCAP and BMI), and the role of concert and orchestral managers. Guest lecturers from various fields; trips to "behind-the-scenes" locations.

MUS 4180 Introduction to World Music (3 q.h.)

The varied musical cultures of non-Western societies. Exploration of characteristics common to all musical systems, followed by investigation of music in the Middle East, southern and eastern Asia, Africa, South and Central America, and the Caribbean.

MUS 4181 Music of Africa (3 q.h.)

The music of Africa is as varied as its many linguistic and tribal identities. Broad survey of African musical traditions and their historical, social, and cultural background as well as Africa's approaches to musical organization, musical practice, and significant aspects of style. Also examines the possible contributions to contemporary African-American music.

MUS 4182 Music of the Middle East (3 q.h.)

Introduction to the music and traditional instruments of selected Near Eastern and Arab cultures, such as Persian culture in the East and Ethiopian and Berber cultures in Africa. Also, cantillation styles and practices of various chants of the Hebrew, Christian, and Islamic traditions.

MUS 4200 How to Read and Write Music

(3 q.h.)

Basics of musical notation for students with little or no theory or performance background. Focuses on the use of the symbols of pitch and duration. Includes sight reading simple melodies, following scores, arranging music for small instrumental groups, transposition, and elementary rhythmic and melodic composition.

MUS 4201 Music Theory I (formerly

Fundamentals of Music Theory I) (4 q.h.)

Basics of music theory as a foundation for further musical study and activity. Begins with aural and visual identification of pitches, intervals, major and minor scales, and triads in the *G* and *F* clefs. Includes rhythmic and simple melodic dictation, sight reading, elementary melodic writing, and chord construction.

MUS 4202 Music Theory 2 (4 q.h.)

Visual identification of pitches in the soprano, alto, and tenor clefs; transposition; some elementary arranging; writing and aural identification of cadences; elementary musical analysis; melodic and rhythmic dictation; and sight reading. *Prereq.* MUS 4201 or equiv.

MUS 4203 Music Theory 3 (4 q.h.)

Continuation of MUS 4202. Elementary four-part writing, introduction to figured bass, score reading, and harmonic analysis. Activities include harmonic as well as melodic dictation and part singing by sight. *Prereq.* MUS 4202.

MUS 4231 Musical Performance I (1 q.h.)

Participation in rehearsals and public performances and/or research; and composition, arranging, conducting, and solo and ensemble activity with the NU Symphony Orchestra, the Early Music Players, the NU Chorus, the NU Bands, or other ensembles under the supervision of a faculty member. Evaluation of student progress at the end of the quarter by audition or other method. *Prereq.* Audition or instructor's permission.

MUS 4232 Musical Performance 2 (1 q.h.)

Continuation of MUS 4231. *Prereq.* MUS 4231.

MUS 4233 Musical Performance 3 (1 q.h.)

Continuation of MUS 4232. *Prereq.* MUS 4232.

MUS 4234 Musical Performance 4 (1 q.h.)

Continuation of MUS 4233. *Prereq.* MUS 4233.

MUS 4235 Chamber Music I (3 q.h.)

Weekly one-hour sessions for rehearsal, study, and performance of music for two to six players (matched according to level) under the guidance of a faculty coach. Repertoire selected from the full range of European concert music by the instructor in consultation with the students. Special tuition rate for Northeastern University staff. For details, contact the Department of Music, 307 Ell Building, 617-437-2440.

MUS 4236 Chamber Music 2 (3 q.h.)

Continuation of MUS 4235. *Prereq.* MUS 4235 or *instructor's permission*.

MUS 4237 Chamber Music 3 (3 q.h.)

Continuation of MUS 4236. *Prereq.* MUS 4236 or *instructor's permission*.

MUS 4241 Piano Class I (3 q.h.)

For beginning piano students who want to progress at their own pace. Grades are awarded after passing various step levels. Ownership of a piano is not required.

MUS 4242 Piano Class 2 (3 q.h.)

Introduction of scales, arpeggios, and triads to help students perform more advanced music. Repertoire consists of original compositions by the instructor and simple works by Bartok and Kabalevsky. *Prereq.* MUS 4241 or *equiv.*, or *instructor's permission*.

MUS 4243 Piano Class 3 (3 q.h.)

Two-octave scales, arpeggios, and triads in all keys. Repertoire consists of Bartok, Kabalevsky, original compositions by the instructor, and duets specifically arranged for this course. *Prereq.* MUS 4242 or *equiv.*, or *instructor's permission*.

MUS 4244 Voice Class (3 q.h.)

Basic vocal production required for fine singing. Repertoire, both classical and contemporary, is chosen for each student to learn and perform in lessons and outside of class. Includes lectures concerning diction, the physiology of singing, resonance, registers, interpretation, and the basics of music reading and sight-singing. Also includes class analysis of recordings of great vocal artists.

MUS 4247 Guitar Class I (3 q.h.)

Guitar for beginners. Covers basic classical guitar techniques, including proper sitting and hand positions, note reading, and ensemble playing. Instruments, preferably nylon-strung, are required.

MUS 4248 Guitar Class 2 (3 q.h.)

For those who have taken MUS 4247 or who already have a basic knowledge of classical guitar techniques and note reading. Introduces both solo and ensemble repertoire suitable to the advanced beginner. *Prereq.* MUS 4247 or *instructor's permission*.

MUS 4249 Guitar Class 3 (3 q.h.)

Continuation of MUS 4248, with repertoire suitable for early intermediate students. *Prereq.* MUS 4248 or *instructor's permission*.

MUS 4250 Conducting (3 q.h.)

How to develop a clear beat technique and prepare, teach, and polish a work in rehearsal. Provides exposure to a basic repertoire and the essentials of vocal-instrumental production. *Prereq.* *Fundamental knowledge of music reading and concurrent membership in a performing ensemble*.

MUS 4254 Music Tutorial I (3 q.h.)

Individual instruction in a musical instrument or in voice. Features weekly 45-minute lessons at any level, presenting suitable instrumental technique and repertoire. Those taking the course for credit are required to play an audition examination at the end of the quarter. Fee for individualized instruction; special rate for Northeastern University staff. For details, contact the Department of Music, 307 Ell Building, 617-437-2440.

MUS 4255 Music Tutorial 2 (3 q.h.)

Continuation of MUS 4254. *Prereq.* MUS 4254.

MUS 4256 Music Tutorial 3 (3 q.h.)

Continuation of MUS 4255. *Prereq.* MUS 4255.

MUS 4301 Form and Analysis (3 q.h.)

The principles of unity and variety in musical composition. Representative works from all periods of Western music are used to analyze and study such single-member forms as theme and variation, rondo, minuet and trio, sonata-allegro, passacaglia, canon, and fugue. *Prereq.* MUS 4203 or *equiv.*

MUS 4800 Directed Study I (3 q.h.)

Opportunity for qualified students to take an upper-level required course when the needed course is not available at the time recommended in the degree scheduling sequence. Petitions and procedural instructions are available in the Liberal Arts Program office. *Allow at least six weeks to complete the petition process.* *Prereq.* 87 q.h.

MUS 4801 Directed Study 2 (3 q.h.)

Second opportunity to do independent work as described in MUS 4800. *Prereq.* MUS 4800.

MUS 4810 Honors Program I (4 q.h.)

Independent work in a selected musical area under the direction of members of the department. Limited to qualified students with the approval of the

department chair and only by special arrangement with the supervising instructor.

Prereq. Program Director's approval.

MUS 4811 Honors Program 2 (4 q.h.)

Second opportunity to do independent work as described in MUS 4810. *Prereq.* MUS 4810 and Program Director's approval.

MUS 4812 Honors Program 3 (4 q.h.)

Additional opportunity to do independent work as described in MUS 4810. *Prereq.* MUS 4811 and Program Director's approval.

NUR 4300 Nursing Transition (9 q.h.)

The first nursing course for registered nurses in the bachelor's degree program, introducing program objectives and philosophy. Through guided and independent study, covers roles and role conflicts, communication, group dynamics, and the nursing process, specifically with patients experiencing the stresses of aging, chronic and long-term illness, and the presence of death. Also examines human nutritional needs, with emphasis on the aged and chronically ill. Registration by permission of the Academic Coordinator. *Prereq.* BIO 4104, BIO 4177, BIO 4190, CHM 4113, and PSY 4112.

NUR 4301 Psychiatric/Mental Health Nursing (7 q.h.)

Development of knowledge of mental and emotional illness through a basic understanding of the dynamics of human behavior and beginning skills in therapeutic intervention. Also introduces the concepts of family and group therapy and crisis intervention techniques. Registration by permission of the Academic Coordinator. *Prereq.* NUR 4300.

NUR 4302 Pharmacodynamics (3 q.h.)

For registered nurses. Introduces pharmacologic principles, the pharmacotherapeutics of drug groups, and individual drug substances of particular importance in the treatment and diagnosis of disease. *Prereq.* CHM 4113.

NUR 4400 Maternal and Child Nursing (9 q.h.)

Maintaining optimal health for child-bearing and child-rearing families from various cultural and social backgrounds. Students examine individuals at selected developmental stages. Provides opportunities to apply the nursing process in client-care settings and to assist families in coping with stresses that interfere with health. Registration by permission of the Academic Coordinator. *Prereq.* NUR 4300, NUR 4302, and PSY 4241.

NUR 4401 Medical-Surgical Nursing (9 q.h.)

Effects of acute illness on individuals, families, and society. Discusses alterations and adaptations in physiology characteristic of acute illness, the nurse's role, the impact of illness on living patterns, and the need for health education and continuity of care. Includes guided clinical experiences, emphasizing the nursing

process and the development of skills necessary to care for the acutely ill adult. Registration by permission of the Academic Coordinator. *Prereq.* NUR 4300, NUR 4301, NUR 4302, and PSY 4241.

NUR 4500 Community Health Nursing (9 q.h.)

Ways in which families, groups, and communities meet the health and welfare needs of their members, with particular attention to the nurse's role. Includes the political implications of health care delivery and current research affecting family and group health and community nursing. Laboratory experience involves work with individuals, families, and communities. Registration by permission of the Academic Coordinator. *Prereq.* NUR 4300, NUR 4302, NUR 4400, NUR 4401, and PSY 4242.

NUR 4501 Contemporary Nursing (5 q.h.)

For seniors. Current trends and issues in nursing and health care delivery. Students define their objectives, pursue an area of nursing in which they are particularly interested, and evaluate their own performance. Synthesizes major concepts through lectures, seminars, and student participation. Registration by permission of the Academic Coordinator. *Prereq.* NUR 4301, NUR 4400, NUR 4401, and SOA 4102.

NUR 4502 Introduction to Nursing Research (4 q.h.)

Builds on prior exposure to selected nursing studies. Covers qualitative and quantitative research and the value of each to nursing and the health care field. Also discusses the importance of nursing to both practitioner and consumer. *Prereq.* NUR 4300, NUR 4301, NUR 4302, NUR 4400, and NUR 4401.

PED 4200 Cardiovascular Health and Exercise (1 cl., 3 lab., 3 q.h.)

Structured exercise program meeting three times per week and offering a choice of jogging, swimming, or aerobic exercise classes and a weekly cardiovascular health lecture. Participants receive two comprehensive cardiovascular medical and physical fitness evaluations, one prior to and one at the completion of the program. Evaluations include a cardiopulmonary examination by a cardiologist, blood chemistry profile, pulmonary function testing, resting EKG, graded exercise treadmill (stress) test with EKG and blood pressure evaluation, assessment of percent body fat (ideal weight and projected weight loss where applicable), and functional assessment of the lower back. Each participant receives a computerized report; individual exercise programs are based on test results.

PHL 4100 Philosophical Thinking (formerly Philosophy: Methods and Values) (3 q.h.)

Methods and values of thinking philosophically. Reveals strategies of dialogue and of informational discovery through understanding and use of the Socratic method of intellectual exchange. Analyzes the universal quest for truth in order to distinguish between knowing and not knowing, dogma, and ignorance. Proves value issues through questions in ethics and moral philosophy.

PHL 4105 Philosophy of Knowing and Reality (3 q.h.)

The difference between knowledge and belief. Areas of theoretical focus include the nature of ultimate reality, the nature of human knowledge, and the nature and existence of God. The investigation of a variety of problems and alternative solutions helps students think independently and self-critically. Emphasizes the development of discipline and precision in communicating ideas.

PHL 4110 Philosophy of Right and Justice (3 q.h.)

Ethics and social and political philosophy. In ethics, addresses the questions "What sorts of things are good or bad?" and "What actions are right or wrong?" In social and political philosophy, examines theories of human nature, social change, social institutions, and major twentieth-century political theories. Possible additional topics include aesthetics and philosophy of history.

PHL 4165 Moral Problems in Medicine (3 q.h.)

Social and moral problems created by medical science. Questions investigated include "Should a human life be prolonged under any condition and at any cost?" "What are the moral problems caused by the current medical definitions of death?" "Is it morally right to predetermine the physical characteristics of future generations by genetic engineering?"

PHL 4170 The Human Search for Meaning (3 q.h.)

Examination of selected philosophical problems of human existence, such as freedom, death, sexuality, alienation, and becoming a person.

PHL 4180 Business Ethics (3 q.h.)

Ethical principles and considerations involved in making moral business decisions. Studies basic ethical viewpoints as a foundation; analyzes specific characteristics of business life through particular cases and examples.

PHL 4200 Logic (3 q.h.)

Essentials of lucid thinking in terms of basic logical concepts, including deductive and inductive reasoning, valid and invalid arguments, and the varied functions of language and definition. Also examines how to recognize and evaluate different kinds of arguments, methods of detecting and avoiding common errors in reasoning, and the link between structured thought and effective communication.

PHL 4220 The Meaning of Death (3 q.h.)

Various philosophical and religious views concerning the meaning of death. Discusses such questions as "What attitude should one take regarding one's own death?" "What role does death play in our personal relations to others?" "Is it necessary to believe in an afterlife in order to give meaning to this life?"

PHL 4223 Philosophy of Consciousness (3 q.h.)

Theories of consciousness, the possibility of higher states of consciousness, and some techniques, such as meditation, alleged to lead to higher states of consciousness. Readings may include psychological and parapsychological literature on the subject.

PHL 4230 Ethics in Theory and Practice (formerly Ethics 1) (3 q.h.)

Major ethical theories, emphasizing ethical naturalism, utilitarianism, moral sense theories, intuitionism, and theological theories. Applications of these theories to real life are discussed and compared.

PHL 4231 Current Topics in Ethics (formerly Ethics 2) (3 q.h.)

Problems and issues encountered in important areas of moral concern, such as euthanasia, punishment, professional conduct, and moral responsibility in general. Explains various approaches to these problems within the framework of major ethical theories.

PHL 4243 Existentialism (3 q.h.)

Existential philosophy as understood through study of its greatest representatives, such as Kierkegaard, Nietzsche, Dostoyevsky, Heidegger, Jaspers, Camus, Sartre, and Merleau-Ponty. Focuses on the central themes of self-alienation, authenticity, and existential experiences.

PHL 4245 Philosophy of Religion (3 q.h.)

The arguments for the existence of God. Covers natural and moral evil, the soul, immortality, the evidence for miracles, and the nature of religious knowledge.

PHL 4247 Theistic, Atheistic, and Agnostic Philosophies (3 q.h.)

Selected theistic, atheistic, and agnostic philosophies. Some questions studied are "Is the belief in God necessary for a comprehensive philosophy of life?" "How does an atheistic philosophy explain and justify the 'higher values' such as love, beauty, and justice?" "How is it possible to base a philosophy on the principle of agnosticism?"

PHL 4249 Feminist Spirituality (3 q.h.)

Women's religious experience as described in classical and contemporary sources. Readings include such works as *Womanspirit Rising*, *The Politics of Women's Spirituality*, and *Dreaming the Dark*.

PHL 4250 Philosophy of Human Nature (3 q.h.)

Philosophical and literary study of human nature. "What is human nature?" "What is a human being?" Examines some of the philosophical answers to these questions, with special attention to the significance of tradition, social role, freedom, and decision.

PHL 4251 Images of Women in Philosophy

(3 q.h.)

Philosophical approach to the study of women in society. Drawing from sources within the history of philosophy and literature, includes the role (ideal and actual) of women in society, love and marriage, oppression and isolation, and the cult of virginity.

PHL 4252 Feminist Ethics (3 q.h.)

The emerging feminist ethos as distinct from traditional descriptions of feminist morals and values. Discusses questions of politics, power, values, and actions. Readings include such works as DeBeauvoir's *The Ethics of Ambiguity* and Daly's *Gyn-Ecology*.

PHL 4255 Women and Religion (3 q.h.)

The role and place of women in the major religions of the world and contemporary feminist challenges to these traditional understandings. Readings include such works as Carmody's *Women and Religion* and Daly's *Beyond God the Father*.

PHL 4265 Contemporary Religious Issues in America (formerly Understanding Religion in America Today) (3 q.h.)

America's remarkable religious pluralism. Includes contemporary Christianity and Judaism, nontraditional Christian and non-Christian movements, cults, sects, and quasi-religious organizations. After becoming familiar with American religious foundations, students study the connections between religion and socio-technological change, sex, biomedical ethics, politics, and the media. May include guest speakers.

PHL 4266 The Religious Right in Contemporary America (3 q.h.)

Evangelism, fundamentalism, extremist groups, and nontraditional Jewish and Christian movements. Also examines "priesthood of all believers," grace and the idea of the "elect," and the state of being "born again" as well as the New Deal, the Great Society, and the "conservative revolution." Includes background on the roots of these movements, from precolonial Europe and Puritan America to the development of the Social Gospel. May include guest speakers.

PHL 4270 The Great Western Religions

(3 q.h.)

Study of the basic teachings of Judaism, Christianity, and Islam.

PHL 4273 Judaism (3 q.h.)

Philosophy of the Jewish religion, its metaphysical and ethical beliefs, and the philosophical origins of these beliefs.

PHL 4275 The Great Eastern Religions (3 q.h.)

Study of the basic teachings of Taoism, Confucianism, Buddhism, Hinduism, and Shintoism.

PHL 4277 Hinduism (3 q.h.)

The Hinduism of the *Upanishads*, the most explicit of the mystical religions. Also includes the devotional aspect of Hinduism as expressed in the *Bhagavad Gita*.

PHL 4279 Buddhism (3 q.h.)

Central teachings of Buddhism, including the doctrines that there is no independently existing immutable self or soul, that all phenomena are impermanent, that existence is suffering, that suffering has a cause, and that there is a way to eliminate suffering.

PHL 4280 Islam (3 q.h.)

History of Islam, its conflicts with the West in the past and in the present, Islamic beliefs, and the future of Islam as a world religion.

PHL 4293 Mysticism: East and West (3 q.h.)

Inquiry into mystical experience through a comparative study of the writings of Christian, Buddhist, and Hindu mystics and of secondary interpretive sources. Explores the potential oneness of humanity with God, the conflict of mysticism with traditional forms of religion, and the possibility of a common, cross-cultural basis for mysticism.

PHY 4081* Introductory Physics I (4 cl., 4 q.h.)

Introduction to mechanics, including units of measurement, vectors, accelerated motion, and Newton's laws of motion. *Credit for this course cannot be applied to the Associate in Engineering, Associate in Science, or the Bachelor of Engineering Technology degree program.*

PHY 4082* Introductory Physics 2 (4 cl., 4 q.h.)

Continuation of mechanics, conservation of energy and momentum, and introduction to elements of heat, thermodynamics, light, and electromagnetism. *Credit for this course cannot be applied to the Associate in Engineering, Associate in Science, or the Bachelor of Engineering Technology degree program. Prereq. PHY 4081*.*

PHY 4104* General Physics I (2 cl., 2 q.h.)

Newtonian mechanics, kinematics and dynamics of particle motion, projectile and circular motion, and conservation laws of energy and momentum. *Prereq. MTH 4110 (or can be taken concurrently).*

PHY 4105* General Physics 2 (2 cl., 2 q.h.)

Temperature, heat energy, the mechanical equivalent of heat, wave motion, sound, Doppler's effect, elasticity and simple harmonic motion, rotational motion, and fluids at rest in motion. *Prereq. PHY 4104*.*

PHY 4106* General Physics 3 (2 cl., 2 q.h.)

Fundamentals of electricity and magnetism, fields, potential, electric current, inductance, capacitance, electromagnetism, a-c and d-c series circuits, properties of light, and simple optical systems. *Prereq. PHY 4105*.*

POL 4103 Introduction to Politics (3 q.h.)

Introduction to contemporary political science, including consideration of basic concepts in political analysis.

*This is a School of Engineering Technology course, offered at a different tuition rate from that of University College.

the role of government institutions, political representation, political ideologies, and the scope and methods of political science.

POL 4104 Introduction to American Government (3 q.h.)

American governmental and political processes, constitutional institutions, political behavior, and liberties.

POL 4105 Introduction to Comparative Politics (3 q.h.)

Comparative study of constitutional and totalitarian systems, including the Western European and Soviet patterns.

POL 4106 Introduction to Politics (4 q.h.)

Basic political concepts and forces of organization from the classical Greeks to the modern nation-state. The Soviet Union and the United Kingdom are contrasted as contemporary illustrations of the institutional distinction between a totalitarian and a constitutional system. *For Alternative Freshmen only.*

POL 4110 The Great Political Thinkers

(3 q.h.)
The great political thinkers from ancient Greece to the twentieth century. Probes the creative genius of such theorists as Plato, Aristotle, Aquinas, Hobbes, Hegel, Locke, Rousseau, Mill, and Marx.

POL 4300 Public Administration I (3 q.h.)

Introduction to the theory, forms, and processes of administration at the national and state levels.

POL 4301 Public Administration 2 (3 q.h.)

Case-study approach to examination of the relation between the theory and practice of public administration. *Prereq.* POL 4300 or *equiv.*

POL 4302 Public Administration (Intensive)

(6 q.h.)
Same as POL 4300 and POL 4301.

POL 4303 Public Personnel Administration

(3 q.h.)
Basic elements of personnel administration, including recruitment, training, classification, promotion, and executive development. Pays special attention to current problems, such as equal opportunity, public employee unionism, and collective bargaining. *Prereq.* POL 4301.

POL 4304 Public Budgeting (3 q.h.)

Politics, procedures, and goals of government budgeting at the federal, state, and local levels. Includes expense, capital, and program budgeting. *Prereq.* POL 4301.

POL 4305 Organizational Theory (3 q.h.)

People and organizations, focusing on organizational and societal problems as a way of understanding how we can survive in a bureaucratic system.

POL 4306 Public Policy Analysis (3 q.h.)

Procedures for the analysis of public policy, including discussion of selected cases of public policy at the local, state, or federal level. *Prereq.* POL 4301.

POL 4310 American Political Thought (3 q.h.)

Political thought from the Colonial period to the present, including study of the impact of religious, economic, and judicial theories on the structure of American ideas.

POL 4311 Research Methods (3 q.h.)

Introduction to some of the most common methods of conducting political science research. Includes problems of theory construction and data gathering and such analytical research tools as bibliographical aids and the computer.

POL 4312 Political Parties and Pressure Groups (3 q.h.)

Party government in the United States and Great Britain. A contrasting study focusing on the interaction of party and government.

POL 4313 State and Local Government

(formerly Government and Politics and the States) (3 q.h.)
State and local governments, their problems, and functional and operational responses to these problems.

POL 4314 Urban and Metropolitan Government (3 q.h.)

Political, structural, and functional problems of an urbanizing United States, including an analysis of urban, suburban, and metropolitan governments.

POL 4318 The American Presidency (3 q.h.)

The nation's chief executive. Includes the presidential electoral process, the president's many constituencies, and the differing styles of twentieth-century presidents. Also includes constitutional and extraconstitutional powers of the office.

POL 4319 The Legislative Process (3 q.h.)

Institutional and functional analysis of the roles of Congress, the chief executive, and political parties in the legislative process.

POL 4320 American Constitutional Law

(3 q.h.)
Case analysis of the development of Federalism, the separation of powers, and the role of the federal and state courts in constitutional development.

POL 4321 Civil Liberties (formerly Civil Rights) (3 q.h.)

Quality and content of civil liberties in the United States. Emphasis is on the 1st, 5th, 6th, 14th, and 15th amendments to the Constitution.

POL 4322 Procedural Due Process (3 q.h.)

Study of due process in the American constitutional scheme.

POL 4330 Comparative Politics (3 q.h.)

Political culture, organization, and behavior in different national settings.

POL 4331 International Relations (3 q.h.)

Elements of and limitations on national power. Discusses contemporary world politics, problems of war, and peaceful coexistence.

POL 4332 International Organization (3 q.h.)

Development of international organizations, emphasizing the United Nations, specialized agencies, and regional organizations.

POL 4333 International Law (3 q.h.)

Procedural and substantive study of the legal relations among nation-states.

POL 4335 Formulating American Foreign Policy (3 q.h.)

The Constitution and political instruments for the formulation of American foreign policy.

POL 4336 American Foreign Policy (3 q.h.)

Study of recent and current American foreign affairs.

POL 4338 European Political Parties (3 q.h.)

Political party systems in England, France, and Germany, emphasizing ideology, organization in and out of Parliament, electoral strategies, and voter behavior.

POL 4339 Government and Politics in the Soviet Union (3 q.h.)

Modern totalitarian theory and practice, followed by study of the ideological and historical bases of the Soviet dictatorship. *Prereq.* POL 4330 or *equiv.*

POL 4341 Soviet Foreign Policy (3 q.h.)

Evolution of Soviet foreign policy since 1917, emphasizing the development of the international Communist movement.

POL 4342 Communism in Eastern Europe (3 q.h.)

Conditions and circumstances surrounding the establishment of Communist regimes in eastern Europe immediately after World War II and their relations with the Soviet Union. *Prereq.* POL 4330 or *equiv.*

POL 4350 Politics and Policies of the Developing Nations (3 q.h.)

Colonialism, the struggles for independence, and the common problems of developing nations. Includes economic development, urbanization, cultural fragmentation, and revolution. *Prereq.* POL 4330 or *equiv.*

POL 4352 Government and Politics of Latin America (3 q.h.)

Historical background of the Latin American nations and their cultural, economic, social, and political characteristics, including political violence and the breakdown of democratic governments. *Prereq.* POL 4330 or *equiv.*

POL 4356 Government and Politics of Northern Africa (3 q.h.)

Comparative analysis of political culture, organization, and behavior of African states north of the Sahara, with emphasis on Morocco, Algeria, Tunisia, and Egypt. *Prereq.* POL 4330 or *equiv.*

POL 4357 Government and Politics of Sub-Saharan Africa (3 q.h.)

Comparative analysis of political culture, organization, and behavior of African states south of the Sahara. *Prereq.* POL 4330 or *equiv.*

POL 4359 Government and Politics in the Middle East (3 q.h.)

Political change, economic growth, and social adaptation in selected countries of the Middle East. Also considers foreign policies, especially the ties of Middle Eastern countries with northern Africa. *Prereq.* POL 4330 or *equiv.*

POL 4362 Government and Politics of Southeast Asia (3 q.h.)

Political instability and problems of establishing democratic structures and processes in the Philippines, Thailand, and India. *Prereq.* POL 4330 or *equiv.*

POL 4364 China's Foreign Policy (3 q.h.)

Peking's relations with Africa, the rest of Asia, the Soviet orbit, and the West. Covers policy objectives, strategy, tactics, and the methods of decision making in both the party and state apparatus.

POL 4365 Government and Politics of China (3 q.h.)

Chinese political culture, emphasizing the nineteenth-century cultural, economic, and political impact of the West, the emergence of the Communist party under the leadership of Mao, and the progressive disintegration of Kuomintang leadership. *Prereq.* POL 4330 or *equiv.*

POL 4367 Government and Politics of Japan (3 q.h.)

Historical development of the Japanese nation, with particular attention to the growth of fascism and efforts to create a viable democracy since World War II.

POL 4370 Introduction to Political Theory (3 q.h.)

Development of the political ideas of the Western world, including the ideas of the major philosophers of Greece, Rome, the Christian Era, and the Renaissance.

POL 4371 Contemporary Political Theory (3 q.h.)

Political ideas and systems of political thought from Machiavelli to the present. *Prereq.* POL 4370 or *equiv.*

POL 4375 Consumer Advocacy I (3 q.h.)

Pragmatic course designed to define and expand the role of consumers in the marketplace. Focuses on contemporary consumer issues, touching upon the legal, social, economic, and political aspects of consumer

problems and the role of consumer lobbies as special interest groups. More specific consumer problems, such as those of the elderly, may also be explored.

POL 4376 Consumer Advocacy 2 (3 q.h.)
Continuation of POL 4375. *Prereq.* POL 4375 or *equiv.*

POL 4377 Consumer Advocacy 3 (3 q.h.)
Continuation of POL 4376. *Prereq.* POL 4376 or *equiv.*

POL 4378 Current Political Issues (3 q.h.)
Constitutional and political basis of selected problems in American political life.

POL 4830 Honors Program I (4 q.h.)
Independent work in a selected area under the direction of members of the department. Limited to qualified students with the approval of the department chair and only by special arrangement with the supervising instructor. *Prereq.* *Program Director's Approval.*

POL 4831 Honors Program 2 (4 q.h.)
Second opportunity to do independent work as described in POL 4830. *Prereq.* POL 4830 and *Program Director's Approval.*

POL 4832 Honors Program 3 (4 q.h.)
Additional opportunity to do independent work as described in POL 4830. *Prereq.* POL 4831 and *Program Director's Approval.*

POL 4840 Directed Study I (3 q.h.)
Opportunity for qualified students to take an upper-level course in their major on an individual basis. Petitions and procedural instructions are available in the Liberal Arts Program office, 617-437-2416. *Prereq.* 87 q.h. and *Program Director's Approval.*

POL 4841 Directed Study 2 (3 q.h.)
Opportunity to initiate a second individual study as described in POL 4840. *Prereq.* POL 4840 and *Program Director's Approval.*

PSY 4110 Fundamental Issues in Psychology (formerly Introduction to Psychology: Fundamental Issues) (3 q.h.)
Fundamental principles and issues of contemporary scientific psychology, approached as a method of inquiry as well as a body of knowledge. Examines the origins and methods of psychology, biological foundations of behavior, states of consciousness, learning, and memory.

PSY 4111 Developmental Aspects in Psychology (formerly Introduction to Psychology: Developmental Aspects) (3 q.h.)
Growth and the life cycle, language, mental abilities, sensory and perceptual processes, and social interaction. *Prereq.* PSY 4110 or *equiv.*

PSY 4112 Personal Dynamics in Psychology (formerly Introduction to Psychology: Personal Dynamics) (3 q.h.)
Motivation, emotion, personality theory and measurement, abnormal psychology, and therapy. *Prereq.* PSY 4110 or *equiv.*

PSY 4113 Introduction to Psychology Intensive A (formerly Psychology Intensive) (9 q.h.)
Same as PSY 4110, PSY 4111, and PSY 4112.

PSY 4114 Introduction to Psychology Intensive B (6 q.h.)
Same as PSY 4110 and PSY 4111.

PSY 4220 Statistics in Psychology I (3 q.h.)
Scales of measurement in psychological research, measures of central tendency, and variability. *Prereq.* PSY 4111 and PSY 4112 or *equiv.*

PSY 4221 Statistics in Psychology 2 (3 q.h.)
Measures of correlation, introduction to probability, and statistical distributions. *Prereq.* PSY 4220 or *equiv.*

PSY 4222 Statistics in Psychology 3 (3 q.h.)
Parametric and nonparametric tests of significance, including chi square, t-test, F test, and simple analysis of variance. *Prereq.* PSY 4221.

PSY 4231 Psychology of Learning I (3 q.h.)
Basic principles and techniques of operant and Pavlovian conditioning and their applications to therapeutic, educational, and specialized training programs. *Prereq.* PSY 4111 or PSY 4112 or *equiv.*

PSY 4232 Motivation (3 q.h.)
Various aspects of motivation, including primary and secondary reinforcement, unconscious motivation, effectuate motivation, and the assessment of motives. *Prereq.* PSY 4112 or *equiv.*

PSY 4240 Development: Infancy and Childhood (formerly Developmental Psychology: Infancy and Childhood) (3 q.h.)
Human development from infancy through late childhood. Covers physical, cognitive, and psychosocial development, including the development of language, morality, and interpersonal relationships.

PSY 4241 Development: Adolescence (formerly Developmental Psychology: Adolescence) (3 q.h.)
Development during the second decade of life, emphasizing the tasks and problems confronting the individual adolescent. Includes biological, social, and cognitive changes as they relate to the creation of a stable, individual identity.

PSY 4242 Development: Adulthood and Aging (formerly Developmental Psychology: Adulthood and Old Age) (3 q.h.)
Unique features and problems of development from the adult years to death. Emphasizes changes that accompany career, marriage, and family developments and the specific psychological adjustments required of the aging person.

PSY 4243 Aging and Mental Health (3 q.h.)

Emotional reactions to age-related issues, such as retirement, bereavement, and health status. Depression and suicide, behavior disorders, substance use problems, and the dementias of old age and the effects these problems have on families and the community. Includes a survey of special assessment techniques, mental health services for the elderly, and public health policies for improved care.

PSY 4262 Cognitive Psychology (3 q.h.)

Mental processes involved in the acquisition, organization, and use of knowledge, including pattern recognition and memory. *Prereq.* PSY 4111, PSY 4112, or *equiv.*

PSY 4263 Psycholinguistics (3 q.h.)

The nature and structure of language, various theories of human production and perception of language, and related experimental findings. *Prereq.* PSY 4111 or *equiv.*

PSY 4270 Social Psychology I

(3 q.h.)

The socialization process, social motives, interpersonal perception, and group membership and structure. *Prereq.* PSY 4111 or *equiv.*

PSY 4271 Social Psychology 2 (3 q.h.)

Attitudes, prejudice and ethnic relations, leadership, mass behavior and social movements, and the effects of mass media on communication. *Prereq.* PSY 4270 or *equiv.*

PSY 4272 Personality I (3 q.h.)

The normal personality and its growth and development. Includes environmental and genetic contributions, assessment of personality, research, and a survey of the major personality theories. *Prereq.* PSY 4112 or *equiv.*

PSY 4290 Psychology of Women (3 q.h.)

Women, historically and in contemporary life, including their social roles and their behavior as determined genetically, physiologically, and psychologically. Examines implications for women's future lifestyles, roles, and contributions. *Prereq.* PSY 4111 or PSY 4112 or *equiv.*

PSY 4351 Physiological Psychology I (3 q.h.)

How nerves function and work together in the nervous system; how our sense organs provide the brain with information about the outside world; how the brain acts to produce behavior; and how such psychological concepts as perception, learning, motivation, arousal, and emotion may relate to nervous system activity. *Prereq.* PSY 4111 or PSY 4112 or *equiv.*

PSY 4352 Drugs and Behavior (3 q.h.)

Application of quantitative behavior techniques in animals and humans to determine the behavioral effects of pharmacological agents. Systematic survey of experimental literature. *Prereq.* PSY 4111 or PSY 4112 or *equiv.*

PSY 4370 Impact of Psychology on Society

(3 q.h.)

Developments such as the uses of intelligence and aptitude tests, psychosurgery and electroconvulsive therapy, techniques of behavior modification and control, minority and women's rights movements, direct brain stimulation by implanted electrodes, use of psychoactive drugs, use of the lie detector, and the application of experimental techniques to human beings. *Prereq.* PSY 4111 or *equiv.*

PSY 4372 Abnormal Psychology I (3 q.h.)

Introduction to the etiology and dynamics of the abnormal personality. *Prereq.* PSY 4112 or *equiv.*

PSY 4373 Abnormal Psychology 2 (3 q.h.)

Symptomatology and treatment of the neuroses and psychoses. *Prereq.* 4372 or *equiv.*

PSY 4374 Abnormal Psychology 3 (3 q.h.)

Psychosomatic, psychopathic, and organic disorders; varieties of psychotherapy. *Prereq.* PSY 4373 or *equiv.*

PSY 4381 Sensation and Perception I (3 q.h.)

Introduction to the nature of the perceptual world, the nature of object recognition and identification, spatial organization, contextual effects, learning and perception, and the influence of attitudinal, motivational, and personality factors on perception. *Prereq.* PSY 4111 or *equiv.*

PSY 4390 Industrial Psychology I (3 q.h.)

Psychology as applied to industry, including such topics as selection and placement procedures, employee assessment, individual differences and their evaluation, and the place of psychological tests in industry. *Prereq.* PSY 4111 or PSY 4112 or *equiv.*

PSY 4391 Industrial Psychology 2 (3 q.h.)

Personnel training and development, motivation and work, attitudes and job satisfaction, engineering psychology, and human factors in accident causation. *Prereq.* PSY 4390 or *equiv.*

PSY 4392 Industrial Psychology 3 (3 q.h.)

Supervision and leadership, morale, personnel counseling, the psychology of labor-management relations, human relations, and organizational behavior. *Prereq.* PSY 4391.

PSY 4471 Psychological Therapies (3 q.h.)

Techniques used for treating deviant behavior, from classical psychoanalytical therapies through methods of behavior modification. *Prereq.* PSY 4374 or *equiv.*

PSY 4531 Psychology of Learning 2

(Laboratory) (3 q.h.)

Through direct experience, students may gain proficiency in the laboratory analysis of behavior and in evaluating common generalizations about human behavior. Students may design and perform experiments in animal and human learning, memory, decision processes, concept formation, and other topics of individual interest. *Prereq.* PSY 4231 or *equiv.* (Laboratory fee)

PSY 4551 Physiological Psychology 2

(Laboratory) (3 q.h.)

Laboratory experiments based on the evolution of the nervous system, sensory and motor mechanisms, motivation and emotion, sleep, attention, perception, learning, and memory. *Prereq.* PSY 4351 or equiv. (Laboratory fee)

PSY 4572 Personality 2 (Laboratory) (3 q.h.)

Introduction to methods and areas of research in personality. Includes problems of measurement, behavioral and dynamic concepts, and laboratory projects. *Prereq.* PSY 4272 or equiv. (Laboratory fee)

PSY 4581 Sensation and Perception 2

(Laboratory) (3 q.h.)

Laboratory experiments on seeing, hearing, touching, and tasting. Studies may focus on adaptation to the dark, loudness, binaural interaction, brightness constancy, two-point touch thresholds, information processing, and interactions between the senses. *Prereq.* PSY 4381 or equiv. (Laboratory fee)

PSY 4611 Senior Seminar in Psychology

(3 q.h.)

Small groups of students meet to discuss topics of mutual interest in psychology. Each seminar has a different focus, depending upon the student group and the instructor. *Prereq.* Senior status or instructor's permission.

PSY 4811 Directed Study I (3 q.h.)

Opportunity for qualified students to take an upper-class course in their major on an individual basis. Petitions and procedural instructions are available in the Liberal Arts Program office, 617-437-2416. *Prereq.* 87 q.h.

PSY 4812 Directed Study 2 (3 q.h.)

Opportunity to initiate a second individual study as described in PSY 4811. *Prereq.* PSY 4811.

PSY 4813 Field Work in Psychology (6 q.h.)

Refer to page 83 describing field work courses. *To be discussed with department consultant or advisor prior to registration; subject to Program Director's approval.*

PSY 4891 Honors Program I (4 q.h.)

Prereq. Program Director's approval.

PSY 4892 Honors Program 2 (4 q.h.)

Prereq. PSY 4891 and Program Director's approval.

PSY 4893 Honors Program 3 (4 q.h.)

Prereq. PSY 4892 and Program Director's approval.

PUR 4351 Purchasing I (3 q.h.)

Introduction to the function of purchasing in the industrial organization. Includes purchasing responsibilities, objectives, organization, and personnel requirements; purchasing policy and systems; the role of the computer in regulating purchasing planning, transactions, and information retrieval; acquisition of purchased materials, development of sources of supply, and quality assurance; and determination and maintenance of required inventory levels. Also covers control of in-

ventory investment, price determination, cost and price analysis of purchase transactions, make or buy decisions, and the role of standardization and value analysis.

PUR 4352 Purchasing 2 (3 q.h.)

The process of purchase negotiations, budgets, and purchase of capital equipment. Includes purchasing for public and nonprofit institutions, disposition of surplus and obsolete materials, traffic and material handling, forward buying and speculation, ethical considerations in purchasing, purchasing law, contract cancellations, purchasing reports, evaluation of purchasing performance, and control and audit procedures. *Prereq.* PUR 4351.

PUR 4353 Purchasing (Intensive) (6 q.h.)

Same as PUR 4351 and PUR 4352.

PUR 4357 Business Negotiations (3 q.h.)

Buyer-seller communication and exchange. Explores the interactive process for arriving at a satisfactory agreement between buyer and prospective vendor and accepted strategies employed by both parties. Explores economic and technical considerations and the psychological and interpersonal environments of negotiations. *Prereq.* PUR 4351.

PUR 4358 Materials Requirements Planning

(3 q.h.)

The MRP system for integrating and organizing purchasing and inventory management functions. System is based on production schedule requirements and variations rather than on historical data and assists the capacity planning process in reaching maximum manufacturing efficiency. MRP provides a rational base for economical procurement planning and control. Concentration is on MRP's unique concepts for managing material supply activity and other critical operating problems.

PUR 4359 Subcontract Management (3 q.h.)

The administration of procurement subcontracts is of major concern to many industrial specialties, including purchasing, sales, engineering, project management, finance, manufacturing, and general management. Course considers all aspects of this function, from development of the work statement through source selection, negotiation, award and postaward administration. Studies selected cases and exercises to increase the student's appreciation of practical aspects of subcontracting policies and procedures. Also covers commercial and government subcontract requirements. *Prereq.* PUR 4352.

PUR 4365 Production Activity Control (3 q.h.)

Principles, approaches, and techniques used to plan, schedule, control, and evaluate the effectiveness of factory production operations. Includes scheduling and control techniques used in various manufacturing environments. Course may be used as preparation for APICS Certification examinations.

PUR 4370 Inventory Management (3 q.h.)

Basic inventory management objectives, from the control of raw materials to finished goods and distribution inventory management. Includes aggregate inventory controls, lot sizing, customer service objectives, and the financial and physical controls necessary for effective inventory management. Course may be used as preparation for APICS Certification examinations.

PUR 4380 Advanced Purchasing Techniques (3 q.h.)

Purchasing for individuals with previous experience in the field. Discusses new techniques, such as "just-in-time" purchasing and computerized purchasing, and managing vendor quality and value analysis techniques. Concentrates on strategies to reduce the cost of purchased materials and the investment in inventories as well as on managing the effectiveness and continuity of sources of supply. *Prereq.* PUR 4352 or equiv.

RAD 4100 Radiologic Technology Orientation I (3 cl., 3 q.h.)

History of X-radiation, radiology department organization, medical terminology, patient care and nursing procedures, and contrast media.

RAD 4101 Radiologic Technology Orientation 2 (3 cl., 3 q.h.)

Study of medical and surgical diseases. *Prereq.* RAD 4100.

RAD 4102 Radiologic Science I (4 cl., 4 q.h.)

Basic concepts of physics, units of measurement, Newton's law of motion, work, energy, atomic theory of matter, electric currents, magnetism, generators, motor production, control of high voltage, and X-ray production. *Prereq.* MTH 4110.

RAD 4103 Radiologic Science 2 (4 cl., 4 q.h.)

Interaction of X-rays and matter; modern X-ray tubes; X-ray circuits; simulator experiments; fluoroscopic systems; and properties of solids, liquids, and gases. Also covers temperature and heat transfer and their application. *Prereq.* RAD 4102.

RAD 4104 Principles of Radiology I (4 cl., 4 q.h.)

Practical, basic radiation protection and the principles of positioning patients for radiographic studies. *Prereq.* RAD 4114.

RAD 4105 Principles of Radiology 2 (4 cl., 4 q.h.)

Principles of precise body positioning for detailed radiographic studies. *Prereq.* RAD 4104.

RAD 4106 Radiologic Photography and Exposure I (4 cl., 4 q.h.)

Basic principles of image formation, electromagnetic spectrum, X-ray tube construction, and factors controlling radiographic quality. *Prereq.* RAD 4103 and MTH 4110 or equiv.

RAD 4107 Radiologic Photography and Exposure 2 (4 cl., 4 q.h.)

Mathematical formulas used in radiography. Includes in-depth study of sensitometry, phototiming principles, tomography, and radiographic film techniques. *Prereq.* RAD 4102 and RAD 4106.

RAD 4108 Radiology Practicum I (3 q.h.)

Application of theoretical principles by performing radiographic procedures under supervision. Assigned homework is part of lesson plans received while at the hospital; lectures are presented at the hospital and at the University. Program requires a minimum of two hours per week.

RAD 4109 Radiology Practicum 2 (3 q.h.)

Continuation of RAD 4108. *Prereq.* RAD 4108.

RAD 4110 Radiology Practicum 3 (3 q.h.)

Continuation of RAD 4109. *Prereq.* RAD 4109.

RAD 4111 Radiology Practicum 4 (3 q.h.)

Continuation of RAD 4110. *Prereq.* RAD 4110.

RAD 4112 Gross Anatomy and Physiology I (3 cl., 2 lab., 4 q.h.)

Fundamental conceptual concepts of living organisms, chemical and biological characteristics of cellular metabolism, and the skeletal system and its appendages. Includes general nomenclature and anatomical names and terms. *The required laboratory is RAD 4113, Lab for RAD 4112, which must be taken at the same time as the course.*

RAD 4114 Gross Anatomy and Physiology 2 (3 cl., 2 lab., 4 q.h.)

Systems of the body, the relationships among them, and the structure and function of each. *The required laboratory is RAD 4115, Lab for RAD 4114, which must be taken at the same time as the course. Prereq.* RAD 4112 or equiv.

RAD 4300 Advanced Radiologic Technology I (3 cl., 3 q.h.)

Special procedures, including cardiovascular procedures, neuroradiology, lymphangiography, and others. *Prereq.* RAD 4103, RAD 4105, and RAD 4107.

RAD 4301 Advanced Radiologic Technology 2 (3 cl., 3 q.h.)

Continued study of special procedures. Offered in the late afternoon. *Prereq.* RAD 4300.

RAD 4302 Imaging Modalities (3 q.h.)

Imaging modalities other than diagnostic X-rays, including xerography, thermography, nuclear medicine, radiation therapy, computerized axial tomography, nuclear magnetic resonance, and ultra sound. Offered in the late afternoon. *Prereq.* RAD 4102, RAD 4105, RAD 4107, and RAD 4114.

RAD 4303 Radiation Protection—Radiobiology (3 q.h.)

Atomic structure, properties of radioactive materials, units of radiation, long-term and short-term biological

effects, survey instruments, reduction of exposure to patients, federal X-ray standards, and radiopharmaceuticals. Offered in the late afternoon. *Prereq.* RAD 4107.

RAD 4304 Cross-Sectional Anatomy

(3 cl., 4 q.h.)

Regional approach to anatomy. Reviews standard anatomy, with emphasis on relations of organs and structures to transverse and longitudinal section appearance. *Prereq.* RAD 4114 or equiv.

RE 4301 Real Estate Fundamentals I (3 q.h.)

Introduction to the basic principles and terminology of real estate useful in various real estate business practices.

RE 4302 Real Estate Fundamentals 2 (3 q.h.)

Practices of real estate brokerage, including real estate appraisal, finance, development, management, and investment. Upon successful completion of RE 4301 and RE 4302, students may take the Massachusetts salesperson's examination. *Prereq.* RE 4301.

RE 4303 Real Estate Fundamentals

(Intensive) (6 q.h.)

Same as RE 4301 and RE 4302.

RE 4323 Real Estate Appraisal I (3 q.h.)

Fundamental course in the appraisal of single-family residences. Examines city or town neighborhood influences, site evaluation, building diagnosis, depreciation, the various approaches to value, and appraisal report preparation. *Prereq.* RE 4302.

RE 4324 Real Estate Appraisal 2 (3 q.h.)

Specialized course in the appraisal of income properties. Application of the cost, market, and income approaches to apartment buildings and other commercial and industrial properties and of the various methods of capitalization and residual techniques. *Prereq.* RE 4323.

RE 4326 Appraising a Single-Family Dwelling (3 q.h.)

Fundamental course in appraising a single-family dwelling for the beginning appraiser, real estate broker, salesperson, lender, assessor, or builder. Includes city and neighborhood analysis, site evaluation, building materials and cost, and depreciation. Also includes selected research into appropriate market data, assembling pertinent information, applying relevant analytical techniques, and preparing appraisal reports, including FNMA/FMAC report forms.

RE 4328 Real Estate Financial Analysis I

(3 q.h.)

How to critically examine and analyze any proposed real estate investment. Explores in detail the financial aspects of acquisition, ownership, and disposition, and considers taxation of investments, forms of property ownership (organization of the venture), analysis of operating statements, financial accounting, use of lever-

age, "tax-sheltered" investments, and special situations. Develops criteria of risk and return on investment (ROI) that should be established by various types of investors. *Prereq.* RE 4324 or instructor's permission.

RE 4329 Real Estate Financial Analysis 2

(3 q.h.)

Detailed analysis of the risks and rewards of real estate investments and problems involved in financing income properties, using case studies, homework problems, and class discussion and debate. Stresses class participation. *Prereq.* RE 4328.

RE 4330 Real Estate Financial Analysis (Intensive) (6 q.h.)

Same as RE 4328 and RE 4329. *Prereq.* RE 4324.

RE 4340 Real Estate Development (3 q.h.)

Practical, step-by-step approach to the organization and development of a real estate project for the entrepreneur, banker, or broker. Includes the role of the developer, acquisition of land, site analysis, construction finance, gap financing and permanent commitments, project budgeting for capital costs and for income and expense, selection of professionals, negotiations of agreements with contractors and owners, and marketing the completed project. Case studies and guest lecturers may be used. *Prereq.* RE 4329 or instructor's permission.

RE 4341 Real Estate Law I (3 q.h.)

Private real estate law, including ownership rights in land, leasehold rights, and easements in the land of another; legal forms of ownership; the transfer and acquisition of title and of other interests; recording of deeds, leases, and other instruments; and the landlord-tenant relationship.

RE 4342 Real Estate Law 2 (3 q.h.)

Public real estate law, including government powers, rights, and controls on privately owned real estate; zoning and subdivision controls; conservation controls; taxation of real estate; rent controls; and eminent domain. *Prereq.* RE 4341.

RE 4344 Real Estate Management I (3 q.h.)

Prepares students for the practical problems of real estate management. Stresses the requisite day-to-day management of commercial, industrial, and residential properties as well as the need for a management strategy relating to long-term property values. *Prereq.* RE 4302 or instructor's permission.

RE 4345 Real Estate Management 2 (3 q.h.)

Continuation of RE 4344. *Prereq.* RE 4344.

RE 4346 Real Estate Management 3 (3 q.h.)

Continuation of RE 4345. *Prereq.* RE 4345.

RE 4347 Real Estate Title Examination (3 q.h.)

Specialized course dealing with the examination of real estate titles and the preparation of a complete report. *Prereq.* RE 4341 or instructor's permission.

REC 4101 Principles and Practices of Therapeutic Recreation I (3 q.h.)

Overview of the field, including rationale, history, philosophy, goals, treatment settings, problems of institutionalization, adjunctive therapies, and professional development.

REC 4102 Principles and Practices of Therapeutic Recreation 2 (3 q.h.)

Basic medical terminology with an overview of traumatic, sensory, neurological, orthopedic, and cardiovascular disabilities. Also includes prosthetics, orthotics, and an examination of attitudinal and societal barriers for the handicapped. *Prereq.* REC 4101 or consultant's permission.

REC 4103 Principles and Practices of Therapeutic Recreation 3 (3 q.h.)

Integrated case-method approach to understanding the diversified needs of the person who has a handicap. Looks at the psychological, sociological, and emotional impact of disabilities as well as how to design, chart, and evaluate individual and group activities. *Prereq.* REC 4102.

REC 4110 Group Dynamics and Leadership I (3 q.h.)

Self-awareness, identity, and interpersonal and intergroup communications. Includes process factors influencing the need to join the group; motivation to participate; membership screening; size and purpose of the group; open-ended and closed approaches; group problem solving; brainstorming; and conflict resolution.

REC 4111 Group Dynamics and Leadership 2 (3 q.h.)

Organization, development, and structure of groups; team building; role and value clarification; ramifications of change; group characteristics; and leadership styles and techniques. *Prereq.* REC 4110.

REC 4112 Group Dynamics and Leadership (Intensive) (6 q.h.)

Same as REC 4110 and REC 4111.

REC 4300 Arts and Crafts I (3 q.h.)

Overview of the creative media available for individual projects. Includes how to develop the technical capability to use a wide variety of materials in imaginative ways and the compilation of a personal arts and crafts manual as a reference tool.

REC 4301 Arts and Crafts 2 (3 q.h.)

Adapting creative skills to a therapeutic setting. Emphasizes continued development of technical capabilities and of instructional skills (one-to-one and group). Also discusses the planning, implementation, and integration of craft programs.

REC 4302 Arts and Crafts (Intensive) (6 q.h.)

Same as REC 4300 and REC 4301.

REC 4310 Social Recreation (3 q.h.)

Planning, organization, and motivation for social recreation activities, including ice breakers, mixers, active and inactive games, joint projects, and special events geared to a variety of settings.

REC 4311 Music Therapy (3 q.h.)

Introduction to the field of music therapy, including an exploration of historical and current theories and various techniques used in clinical settings. Also includes a survey of the literature of therapy, covering special education and psychiatric and geriatric areas.

REC 4312 Media Resources and Techniques (3 q.h.)

How to design overlays, transparencies, posters, brochures, and other materials and creatively use slides and tapes. Also covers the operation of P.A. systems, 16 mm. opaque film strips, overhead projectors, and other photographic devices.

REC 4313 Therapeutic Use of Dramatics (3 q.h.)

The value of reinforcement and socialization through pantomime, improvisations, puppetry, skits and stunts, dramatic games, storytelling, and one-act plays. Emphasizes creativity in the therapeutic setting.

REC 4401 The Nursing Home Experience (3 q.h.)

Exchange of empirical data relating to case experiences and institutional procedures encountered by activity leaders and other practitioners in nursing homes. Examines the feasibility of functional innovations in relation to present practices.

REC 4410 Therapeutic Recreation in Rehabilitation (3 q.h.)

Philosophy, goals, and background in rehabilitation; team membership concepts. Includes the role of therapeutic recreation in the acute and chronic hospital, the rehabilitation center, and in various community settings.

REC 4420 Activity and Movement Analysis (3 q.h.)

Basic anatomy as it relates to the identification of muscle groups in action. Analyzes both the movement and the ingredients of the activity and their suitability with given disabilities. *Prereq.* BIO 4175.

REC 4425 Mental Illness and Retardation (3 q.h.)

Origins and manifestations of mental illness and retardation. Historical and contemporary overviews include discussions of treatment, settings, case studies, and trends.

REC 4430 Therapeutic Recreation in Child Development (3 q.h.)

Growth and development patterns from birth to age 12. Includes study of the need for play, learning through play, and the therapeutic value of play. Exa-

mines biological, psychological, and sociological aspects by watching children at play.

REC 4440 Humanistic and Holistic Approaches in Therapeutic Recreation (3 q.h.)

Use of trust, imagination, verbal and nonverbal communication, intuition, emotions, the will, spirit, motor coordination, sensory awareness, and self-responsibility to develop innovative programming.

REC 4445 Community Recreation for the Handicapped (3 q.h.)

Developing and initiating a comprehensive special needs program in the community by integrating efforts with school and special education departments, municipal officials, and parent groups. Covers needs statements, concepts of budgeting and funding, publicity, and program development. Site visits.

REC 4460 The Process of Aging (3 q.h.)

Psycho-social dynamics of growing old, physical changes as a result of aging, the needs of people as they age, and attitudes toward work, retirement, and leisure. A study of dependency versus independence, remotivation, death and dying, and programs and services that add quality to the long life.

REC 4461 Camping for the Disabled (3 q.h.)

Basic goals, values, and procedures for operating outdoor education and camping programs. Emphasizes social integration with nondisabled children and the development of innovative programs.

REC 4462 Leisure Counseling (3 q.h.)

Remedial and developmental process designed to produce behavior and attitude changes in the client's leisure patterns. Development of competence in identifying, using, and referral to appropriate recreational resources. Compares leisure counseling fundamentals in a variety of recreational settings.

REC 4500 Field Practicum I (4 q.h.)

Assigned field experience in a treatment facility under supervision of a qualified professional. Students have the opportunity to learn about the direct service application of classroom theory through observation and participation and written reports, evaluations, and seminars. The experience averages eight hours a week for 12 weeks. *Prereq.* REC 4103 *plus* 12 q.h. of professional courses and practicum coordinator's permission.

REC 4501 Field Practicum 2 (4 q.h.)

Continuation of REC 4500. *Prereq.* REC 4500.

REC 4802 Independent Study I (4 q.h.)

Research study, through survey and other methods, geared to the individual's area of professional focus. Students are expected to gather, analyze, and evaluate data and periodically submit progress reports to the research advisor. *Prereq.* REC 4103 and consultant's permission.

REC 4803 Independent Study 2 (4 q.h.)

Continuation of REC 4802. *Prereq.* REC 4802.

SOA 4100 Physical Anthropology (formerly Anthropology 1) (3 q.h.)

Introduction to elements of physical anthropology, covering such subjects as primates, fossil humans and evolution, problems of heredity and genetics, race and racial classifications, and the bases of cultural behavior. *Not open to students who have credit for SOC 4010.*

SOA 4101 Cultural Anthropology: Preliterate Societies (formerly Anthropology 2) (3 q.h.)

Introduction to socio-cultural anthropology. Examines the nature of language and the cultural institutions of human groups with simple foraging and horticultural adaptation. *Not open to students who have credit for SOC 4011.*

SOA 4102 Cultural Anthropology: Industrial Societies (formerly Anthropology 3) (3 q.h.)

The institutions and cultures of technologically advanced societies and states.

SOA 4103 Anthropology Intensive A (6 q.h.)

Same as SOA 4100 and SOA 4101.

SOA 4104 Anthropology Intensive B

(formerly Anthropology Intensive) (9 q.h.)

Same as SOA 4100, SOA 4101, and SOA 4102.

SOA 4146 Peasant Societies in a Changing World (3 q.h.)

Changes affecting traditional peasant cultures in the non-Western and Western worlds. Examines the processes occurring in situations involving culture contact, conquest, and colonialism.

SOA 4155 Individual and Culture (3 q.h.)

Cross-cultural comparisons of the socialization and acculturation of children and adults with respect to roles, values, and personality. Examines theories and methods used in psychological anthropology.

SOA 4160 Sex, Sex Roles, and the Family (3 q.h.)

Analysis of popular and scientific notions about sex and the family by examining the social patterning of interactions in our culture, other cultures, and other species. Emphasizes the changing relationships between men and women.

SOA 4266 Folklore (3 q.h.)

Folklore, art, and song in various societies and how they are studied. Examines contemporary American materials.

SOA 4322 Anthropological Theory (3 q.h.)

History of the major orientations and philosophies of anthropology, including evolutionist, culture area, and historical approaches and functional, structural, ecological, and cognitive modes of analysis.

SOA 4430 Native North American Peoples (3 q.h.)

Past and present circumstances of a number of native North American peoples.

SOA 4431 African Peoples and Cultures

(3 q.h.)

African geography, prehistory, and culture; the spectrum of societal complexity ranging from Mbuti egalitarianism to Ashanti federation; and the problems of political, economic, and social change in contemporary Africa.

SOA 4434 Latin American Peoples and Cultures (3 q.h.)

Tribal and peasant adaptations of native and Hispanic populations to changing conditions in Latin America.

SOA 4470 Religion in Cross-Cultural Perspective (3 q.h.)

Comparative analysis of the rituals, beliefs, and religious institutions of various groups.

SOC 4010 Principles of Sociology I (4 q.h.)

Introduction to basic concepts and theories relating to the study of people as participants in group life. Emphasizes socialization, culture, social structure, primary groups, family, social stratification, and population. *For Alternative Freshmen only. Not open to students who have credit for SOC 4100 or SOC 4101.*

SOC 4011 Principles of Sociology 2 (4 q.h.)

Continuation of SOC 4010, emphasizing critical analysis of American society with particular attention to problems of social, political, urban, and industrial change. *For Alternative Freshmen only. Not open to students who have credit for SOC 4101 or SOC 4102. Prereq. SOC 4010 or equiv.*

SOC 4100 Fundamental Issues in Sociology

(formerly Introduction to Sociology: Fundamental Issues) (3 q.h.)

Basic theoretical perspectives, research methods, and concepts of sociology, including society, status and role, socialization, and social groups. *Not open to students who have credit for SOC 4010.*

SOC 4101 The Individual and Social Roles

(formerly Introduction to Sociology: The Individual and Social Roles) (3 q.h.)

Involvement of individuals in society, including culture, social interaction, deviance, sex roles, sexuality, and family. *Not open to students who have credit for SOC 4010 or SOC 4011. Prereq. SOC 4100 or equiv.*

SOC 4102 Critical Issues Facing Society

(formerly Introduction to Sociology: Critical Issues Facing Society) (3 q.h.)

Social factors of importance, including business and industry, population and ecology, science and technology, class, and race and ethnic relations. *Not open to students who have credit for SOC 4011. Prereq. SOC 4100 or equiv.*

SOC 4103 Introduction to Sociology

Intensive A (formerly Sociology Intensive) (9 q.h.)

Same as SOC 4100, SOC 4101, and SOC 4102.

SOC 4104 Introduction to Sociology

Intensive B (6 q.h.)

Same as SOC 4100 and SOC 4101.

SOC 4120 Sociology of Boston (3 q.h.)

The City of Boston from the perspectives of environmental development, neighborhood and intergroup relations, institutional services, and symbolic meanings. The city is a laboratory for exploring the people's search for a lifestyle and the satisfaction of their needs. Includes field trips with workbook and requires use of documentary and literary sources for term paper report. *Does not meet elective requirements for Sociology-Anthropology major.*

SOC 4125 Social Problems (3 q.h.)

Contemporary American social problems and the application of sociological concepts, methods, and principles to these problems.

SOC 4147 Urban Sociology (3 q.h.)

Various causes, characteristics, and effects of urbanization in several different cultures. Gives specific attention to the problem of urban and suburban living and the changing structure of the city.

SOC 4154 Sex and Gender Roles in Society

(formerly Sex in Society: The Study of Sex Roles)

(3 q.h.)

Historical and contemporary developments, examining the ways in which men's and women's changing roles are related to society at large.

SOC 4155 Sociology of the Family (formerly

Sociology of the Family 1) (3 q.h.)

The family as a social institution in several selected cultures; family interrelations with political, economic, and educational institutions; and the changing nature of the family.

SOC 4156 Violence in the Family (formerly

Sociology of the Family 2) (3 q.h.)

Physical, emotional, and sexual violence that occurs in families, emphasizing child and spouse abuse. Analyzes definitions, prevalence, causes, prevention, and treatment of specific cases of violence. Primary focus is on social and policy issues and problems of legal intervention.

SOC 4170 Race and Ethnic Relations (3 q.h.)

Relationships among various racial, national, cultural, and religious groups, emphasizing the development of black-white relationships in American society. Also covers the problems of contemporary minority peoples in American and other societies.

SOC 4175 Sociology of Work (3 q.h.)

The world of work, focusing on the development of occupational cultures, the nature of careers, and the meanings and implications of professionalization. Students are encouraged to do a project on a career they are considering or one in which they have had practical experience on co-op.

SOC 4176 Business and Industrial Sociology (3 q.h.)

Role of industry in modern society. Examines similarities and dissimilarities among industrial societies, bureaucracy and its alternatives, unions, supervision democracy and manipulation, the individual on the assembly line, sabotage of the organization, and the role of wages and alienation.

SOC 4185 Sociology of Deviant Behavior (3 q.h.)

A variety of social problems and their relation to the organization of society. Pays particular attention to alcoholism, sexual offenses, drug abuse, mental disorders, and other responses to conditions of urban industrial society.

SOC 4186 Social Control (3 q.h.)

Group membership as a determinant of behavior, including analysis of status and role, patterns of authority, power, and group ideology as factors in the evaluation of conduct.

SOC 4190 Juvenile Delinquency (3 q.h.)

Factors involved in juvenile delinquency and their implications for prevention, rehabilitation, and treatment.

SOC 4195 Drugs and Society (3 q.h.)

Introduction to the sociology of drugs. Examines social definitions of drugs, conditions of their use, and socialization into drug use. Considers deviant drug use and effects of social control on definitions and use. A range of licit and illicit drugs is considered.

SOC 4205 Law and Society (3 q.h.)

Functions of law in modern society; legislation, litigation, and adjudication as social processes; the legal profession, the courts, and the administration of justice; laws and judicial decisions on controversial social issues; and laws regulating domestic, industrial, and other major social relationships.

SOC 4215 Medical Sociology (3 q.h.)

Sociological concepts and research relating to patterns of behavior in the areas of health and disease. Emphasizes the family, community, medical organizations, class, and status as social subsystems related to the field of health.

SOC 4220 Sociology of Mental Health (3 q.h.)

Sociological aspects of mental health and mental disorder. Examines the social history of mental illness, epidemiological and cross-cultural approaches to mental disorder, the career of the mental patient, the functions of psychiatry in society, community and social treatment modalities, and social psychiatry.

SOC 4225 Social Gerontology (3 q.h.)

Issues and questions of aging, with special attention to social and economic consequences of the aging process, such as retirement and productivity, health care problems, nursing home residences, widower- and widowhood, and the approach of death. Presents examples relating to aging in other cultures in a search

for new answers to social problems of aging in the United States. Discusses how to anticipate, cope with, and even prevent problems of aging that concern self, family, and clients or patients.

SOC 4226 Work, Leisure, and Aging (3 q.h.)

Theory and practice of leisure time activities as they relate to the older adult. Examines the social, cultural, and economic aspects of work, including housework, and the meaning of leisure. Explores various types of leisure activities and resources as well as how to build skills and design and implement activities.

SOC 4240 Sociology of Human Service Organizations (3 q.h.)

The contradiction between what human service organizations set out to do and what they actually accomplish. Includes how human service organization goals are defined, how clients become labeled, and the societal constraints placed on clients, workers, and the organizations.

SOC 4241 Human Services Professions (3 q.h.)

Human services, viewed from the perspectives of the recipient, the worker, and the society at large. Includes analysis of why they are needed, how agencies and programs have developed, and the basic skills, attitudes, values, and knowledge required of the human service worker today.

SOC 4245 Poverty and Inequality

(formerly Sociology of Inequality) (3 q.h.)

Historical analysis of American class and ethnic differences, drawing on comparisons with other countries. Includes critical evaluation of sociological research and theories relating to the causes and effects of poverty and societal responses to it. Suitable for students in applied fields, such as nursing, criminal justice, education, allied health, pre-med, and pre-law.

SOC 4255 Sociology of Sport (3 q.h.)

Games and sport from a sociological perspective, with particular reference to contemporary American society. Includes such topics as the role of play in modern society, the social organization of specific games and sports, and the relation of organized sport to the larger society.

SOC 4260 Introduction to Social Work Practice I (3 q.h.)

Functions of the helping profession of social work, its settings and methods. Covers specific techniques, such as interviewing, history taking, and recording skills.

SOC 4261 Introduction to Social Work Practice 2 (3 q.h.)

Continuation of SOC 4260, with particular attention to the functioning of social workers in selected settings. *Prereq.* SOC 4260 or equiv.

SOC 4262 Introduction to Social Work Practice 3 (3 q.h.)

Continuation of SOC 4261, emphasizing enhancement of practice skills. *Prereq.* SOC 4261 or equiv.

SOC 4276 Sociology of Popular Culture

(3 q.h.)

Significance of expressions of popular culture, such as film, television, music, and literature. Examines media production, organization, technology, and audience consumption. Also explores the relationship between popular culture and existing socio-economic institutions.

SOC 4300 Social Theory I (3 q.h.)

Historical survey of sociological theorists, including the work of de Tocqueville, Comte, Marx, Durkheim, and Cooley. *Prereq.* Instructor's permission or 12 q.h. in *Sociology-Anthropology*.

SOC 4301 Social Theory 2 (3 q.h.)

Major theoretical issues in sociology. Discussion concentrates on systematic questions and topics rather than on particular theorists, but material is drawn from such theorists as Weber, Simmel, Thomas, Mannheim, Merton, and Parsons. *Prereq.* SOC 4300 or equiv.

SOC 4302 Social Theory 3 (3 q.h.)

Seminar focusing on questions of theoretical interest, such as the problem of order, the problem of change, and the role of the individual in change. Students present papers in class. *Prereq.* SOC 4301 or equiv.

SOC 4303 Social Theory (Intensive) (9 q.h.)

Same as SOC 4300, SOC 4301, and SOC 4302. *Prereq.* Instructor's permission or 12 q.h. in *Sociology-Anthropology*. Not open to students who have credit for SOC 4300, SOC 4301, or SOC 4302.

SOC 4310 Class, Power, and Social Change

(3 q.h.)

Theories of social equality and inequality as applied to the exercise of power and to the growth and development of social movements and group conflict. Takes a large-scale, social-change point of view.

SOC 4321 Social Research Methods I: Generating and Investigating Research Problems (4 q.h.)

Methods for gaining knowledge through social research. Emphasizes the practical aspects of research, such as the problems sociologists face in doing research and how they have been solved. Students are required to design a small study.

SOC 4322 Social Research Methods 2:**Tabulating and Analyzing Social Data** (4 q.h.)

Methods of tabulating, presenting, summarizing, and analyzing data, including elementary descriptive and inferential statistics and how to use them. Emphasizes statistics as a tool and introduces the use of the computer. *Prereq.* SOC 4321 or equiv.

SOC 4323 Social Research Methods 3: Doing Social Research (4 q.h.)

Students carry out the study they designed in SOC 4322, analyze data, and report results. Includes the ethics and politics of social research and the interrela-

tionship of social action, social research, and theory building. *Prereq.* SOC 4322 or equiv.

SOC 4348 Seminar in Urban Studies (3 q.h.)

Interdisciplinary approaches to analyses of urban issues. Continuing student projects. *Prereq.* One course in an urban studies field.

SOC 4375 Sociology of Occupations and Professions (3 q.h.)

Social relations within occupational groups; occupational structures; and the institutional aspects of an occupation. Also discusses relationships among supervisors, peers, colleagues, subordinates, and clientele and their significance for work-role behavior.

SOC 4376 Sociology of Industry (3 q.h.)

Comparison of pre-industrial and industrial society, stressing the impact of industry on society and the interrelationship of industry, culture, and values. Also discusses diversification, specialization, human relations, and formal and informal groups.

SOC 4800 Directed Study I (3 q.h.)

Opportunity for qualified students to take an upper-level course in their major on an individual basis. Petitions and procedural instructions are available in the Liberal Arts Program office, 617-437-2416.

SOC 4801 Directed Study 2 (3 q.h.)

Second opportunity to initiate individual study as described in SOC 4800. *Prereq.* SOC 4800.

SOC 4805 Field Work in Sociology (6 q.h.)

Refer to page 83 describing field-work courses. To be arranged with a department field-work advisor prior to registration. Students who are eligible for department honors courses may take any combination of field work and honors totaling three courses, subject to the Program Director's approval. *Prereq.* Major in *Sociology-Anthropology* and completion of 15 credits in *Sociology*. Students may receive credit for only one departmental field-work course.

SOC 4820 Honors Program I (4 q.h.)

Independent work in a selected area under the direction of members of the department. Students may take any combination of field work and honors totaling three courses. *Prereq.* SOC 4302, SOC 4323, and Program Director's approval.

SOC 4821 Honors Program 2 (4 q.h.)

Second opportunity to do independent work as described in SOC 4820. *Prereq.* SOC 4820 and Program Director's approval.

SOC 4822 Honors Program 3 (4 q.h.)

Additional opportunity to do independent work as described in SOC 4820. *Prereq.* SOC 4821 and Program Director's approval.

SPC 4001 Speaking Skills for International Students I (3 q.h.)

Introductory instruction in pronunciation and intelligibility for formal and informal situations. Monitors

communication skills through use of video and audiotape recordings and work in the language laboratory. Following diagnostic testing, students participate in individualized small- and large-group instructional situations. Placement tests are given during the first week of class.

SPC 4002 Speaking Skills for International Students 2 (3 q.h.)

Intermediate-level course designed for persons who have previously studied English, but who need to develop oral communication proficiency. Monitors communication skills through use of video and audiotape recordings and work in the language laboratory. Following diagnostic testing, students participate in individualized small- and large-group instructional situations. Placement tests are given during the first week of class.

SPC 4003 Speaking Skills for International Students 3 (3 q.h.)

Advanced-level course designed for students who have previously studied English and who can make themselves understood easily, but who have difficulty conversing. Includes task-oriented interaction, a variety of two-person communication situations, and small-group interactions. Progress is monitored through use of video and audiotape recordings. Placement tests are given during the first week of class.

SPC 4101 Fundamentals of Human Communication (formerly Effective Communication 1) (3 q.h.)

Students explore group dynamics and apply their knowledge to the classroom experience while developing skills in group decision making, problem solving, membership functions, and leadership styles.

SPC 4102 Group Discussion (formerly Effective Communication 2) (3 q.h.)

Focuses on small-group communication, elements of group structure, task and maintenance functions, leadership, and formalized methods of group problem solving and decision making. *Prereq.* SPC 4101 or equiv.

SPC 4104 Effective Communication (Intensive) (6 q.h.)

Same as SPC 4101 and SPC 4102.

SPC 4111 Voice and Articulation (3 q.h.)

Developing the speaking voice, with emphasis on articulation, pitch control, and vocal variety and flexibility. Includes basic theory of the vocal mechanism.

SPC 4150 Self-Concept and Communication (3 q.h.)

The ways communication patterns are formed and how they work in our personal and professional lives. Emphasizes how self-concept affects communication. By combining thinking, feeling, and doing, students can develop awareness of their attitudes and habits and explore alternative communication patterns.

SPC 4151 Listening (3 q.h.)

Students identify their unique listening styles and explore ways to make them more flexible. Covers reasons for poor listening, techniques for effective listening, and giving and receiving feedback.

SPC 4152 Interviewing (3 q.h.)

Fundamental communication principles and how they apply to the interview process. Examines these principles from the perspectives of the interviewer and the interviewee, helping students to prepare for both roles. Gives special attention to employment, information retrieval, and persuasive interviews.

SPC 4153 Techniques of Persuasion (3 q.h.)

Communication strategies used when attempting to influence others. Examines instances of persuasion as they occur in advertising, politics, social interaction, sales, and business.

SPC 4154 Negotiation Skills (3 q.h.)

Skills involved in bringing matters to mutually acceptable settlements. Through lectures, discussions, case studies, and classroom activities, students examine conflict resolution in both personal and professional settings.

SPC 4201 Argumentation and Discussion (3 q.h.)

Basic concepts of argumentation, such as evidence, research, and refutation, with emphasis on the psychology of the audience and various types of group discussion.

SPC 4221 Interpersonal Communications I (3 q.h.)

Ways of becoming more aware of one's self and one's relationship to others. Explores options for communicating and for increasing one's knowledge of the group process. Limited enrollment.

SPC 4222 Interpersonal Communications 2 (3 q.h.)

Continuation of SPC 4221. *Prereq.* SPC 4221 or instructor's permission.

SPC 4231 Female/Male Communication I (3 q.h.)

Ways in which female/male relations are created, maintained, developed, or dissolved through communication. Examines the influence of family, friends, the media, and "significant others" in sustaining stereotypes for both sexes and the impact of such stereotyping on the self and on effective communication. Also looks at the use of verbal and nonverbal communication to understand the types of relationships between men and women and how different female/male language styles affect these relations.

SPC 4232 Female/Male Communication 2

(3 q.h.)

Interaction and transactional approaches to analyzing existing relationships. Provides the opportunity to develop skills in diagnosing communication transactions and in developing strategies for effective communication. The influence of supportive and defensive environments and the communication behavior of each are examined and applied to strategies for improving relationships between males and females. *Prereq. SPC 4231 or instructor's permission.*

SPC 4251 Business and Professional Speaking

(3 q.h.)

Practice in the organization and presentation of material to fit varying audiences. Emphasizes delivery techniques and effective presentation of ideas.

TCC 4050 Wordstar (2 q.h.)

Composing and writing on a computer screen using Wordstar, the professional text-editing system used by many professional technical writers and editors. Course provides interpretation of the instruction manual as well as hands-on experience with University-supplied personal computers and software.

TCC 4101 Technical Writing I (3 q.h.)

Introduction to basic technical writing skills, emphasizing selecting and organizing data. Includes audience analysis, research techniques, and descriptions of objects, mechanisms, and processes. Provides practice in descriptive writing, classification and definition, paragraphing, and preparing technical documentation outlines. Includes frequent technical writing exercises and projects applicable to both software and hardware writing tasks. *A writing proficiency test is given at the first class meeting.*

TCC 4102 Technical Writing 2 (3 q.h.)

Application of the information gathering, organizational, and technical writing skills acquired in TCC 4101 to more advanced projects. Extensive practice in formatting, organizing, writing, and editing technical reports. *Prereq. TCC 4101.*

TCC 4103 Technical Writing (Intensive)

(6 q.h.)

Same as TCC 4101 and TCC 4102. *A writing proficiency test is given at the first class meeting.*

TCC 4105 Editing for Science and Technology (3 q.h.)

Fundamentals of editing as they apply to scientific, technical, and engineering writing. The role of the editor in business, industry, and the sciences; basic editorial services such as proofreading, copy and content editing, production editing, and project editing; analysis and critique of manuscripts; work with authors; the editor as writer and interviewer; and science interpretation and technical translation. Accelerated work for students already skilled in spelling and grammar. *Prereq. TCC 4101 or instructor's permission.*

TCC 4110 Technical-Promotional Writing

(3 q.h.)

Structure, style, and graphic presentation of technical-promotional writing in a high-tech environment. Students are trained to combine technical knowledge and writing skills in developing quality technical brochures, articles, product catalogs, demonstration kits, slide presentations, and video scripts. *Prereq. TCC 4101, TCC 4102, or instructor's permission.*

TCC 4301 Computer Software Technical Writing I (3 q.h.)

Introduces the tasks and problems unique to software technical writing. Includes review of fundamental software concepts, the role and importance of software documentation, component parts of software technical manuals and their purposes, tutorial and reference functions of manuals, research tools for manual writing, and the writing process itself. *Prereq. TCC 4101 and MIS 4102 or instructor's permission.*

TCC 4302 Computer Software Technical Writing 2 (3 q.h.)

Continuation of TCC 4301. *Prereq. TCC 4301.*

TCC 4311 Instruction Manual Writing I

(formerly Hardware Technical Manual Writing I) (3 q.h.)

Introduces the fundamentals of technical manual writing, including the theory and practice of manual design, organization, and content. Covers copyright law, product liability, graphic design, readability, manual specifications and standards, illustrations, and reproduction techniques. Emphasizes hardware operations manuals. Includes individual and class design and writing projects. *Prereq. TCC 4101 and TCC 4102.*

TCC 4312 Instruction Manual Writing 2

(formerly Hardware Technical Manual Writing 2) (3 q.h.)

Application of skills acquired in TCC 4311 to an entry-level technical manual writing project. Students elect individual or group writing and production projects for high-technology equipment or systems lacking adequate documentation. Includes instruction in writing safe, legible, operating instructions and descriptions of installation procedures, principles of operation, and maintenance. Also covers manual changes and updates. *Prereq. TCC 4311 or instructor's permission.*

TCC 4320 Proposal Writing (3 q.h.)

Background in the preparation of proposals, including how to analyze a request for proposal or bid set. Introduces the various types of proposals generated by industry and provides an opportunity to prepare a proposal in a simulated situation, through role playing and participation on a proposal preparation team. Includes considerable analysis and writing practice. *Prereq. TCC 4102 or instructor's permission.*

TCC 4330 The Business and Technical Presentation (3 q.h.)

Application of the principles of technical communication to audiovisual presentations. Includes audience analysis, techniques of organization, script preparation, media selection, the design and production of visuals, the influence of physical factors on communication, and the elements of effective delivery. Participants prepare and deliver presentations and receive video playback and peer critiques.

TCC 4350* Concepts of Modern Technology I (3 q.h.)

Applications of physical science to mechanical devices, including an introduction to the laws of thermodynamics and the influence of material properties on design and manufacturing techniques. *Prereq.* MTH 4082*.

TCC 4351* Concepts of Modern Technology 2 (3 q.h.)

Applications of physical science to electrical and electronic devices, including an introduction to electronic circuit design, a comparison of various devices used for amplification and control, and a study of the development of the electronic digital computer and the components involved in the manufacture of computers. *Prereq.* TCC 4350*.

TCC 4353* Modern Electronics (3 q.h.)

Components available to the designer of electronic devices, including linear integrated circuits and digital building blocks. Topics include operational amplifier characteristics, truth tables and the synthesis of digital logic, logic families and specifications, counters, registers and decoding, digital instruments, and digital-to-analog conversion.

TCC 4800 Directed Study I (3 q.h.)

Opportunity for qualified students to take an upper-level, required course when the needed course is not available at the time recommended in the degree sequence. Petitions and procedural instructions are available from the Liberal Arts Program office, 617-437-2416. Allow at least six weeks to complete the petition process. *Prereq.* 87 q.h.

TCC 4801 Directed Study 2 (3 q.h.)

Opportunity to initiate a second individual study as described in TCC 4800. *Prereq.* TCC 4800.

TRN 4301 Elements of Transportation (3 q.h.)

Introduction to regulatory, economic, and management aspects of transportation from the viewpoints of the shipping industry, government, and carrier management. Includes cost, rates, operations, entry, mergers, and intercity passenger carriage. Course is of general interest to students in business, law, or government.

TRN 4302 Physical Distribution Management (3 q.h.)

Introduction to the physical distribution management concept. Includes inventory control, warehousing, cost control, and locational strategy. Course uses text and case materials developed from industry situations.

TRN 4305 Traffic Management I—Rates and Tariffs (3 q.h.)

Practical course in the interpretation and use of tariffs. Includes classification, rate scales, tariff rules, rate-making procedures, and ICC law and practice.

TRN 4306 Traffic Management 2—Selected Topics (3 q.h.)

Further study of traffic management, covering such topics as routing, claims, insurance, consolidation, and packaging. *Prereq.* TRN 4305.

TRN 4307 Contemporary Issues in Transportation and Distribution (3 q.h.)

Examination of a number of topics of particular interest during the current academic year.

TRN 4316 Carrier Management (3 q.h.)

The transportation system from the carrier viewpoint. Includes managerial response to a heavily regulated and rapidly expanding environment and carrier decision making involving routes, scheduling, financing, and pricing of services.

TRN 4321 Transportation Regulation I (3 q.h.)

Principal elements of transport regulation, public policy, and the role of federal and state regulatory agencies. Special attention is given to the types of commerce, carriers, and services subject to regulation; entry and exit requirements; economic and cost considerations; and selective rate and tariff construction rules. Addresses all modes of transportation, emphasizing rail and motor issues.

TRN 4322 Transportation Regulation 2 (3 q.h.)

Regulations and industry practices covering performance requirements, liabilities, and responsibilities of shippers; regulated carriers; and exempt forms of transportation. Reviews rules and procedures established by the ICC and Massachusetts DPU, with special attention to informal and modified procedure cases. *Prereq.* TRN 4321.

TRN 4325 Management of Warehouse Operations (3 q.h.)

Practical course in the management of warehouses. Includes site selection, construction, finance, operations, measurement of performance, and warehouse technology.

TRN 4330 Organization and Control of Physical Distribution Management (3 q.h.)

Establishment of the firm's physical distribution organization, its interrelation with other company functions, and advanced physical distribution problems.

*This is a School of Engineering Technology course, offered at a different tuition rate from that of University College.

**TRN 4331 Surface Transportation 1—
Railroad Management** (3 q.h.)

Management-oriented course on the current and future status of railroads. Includes investment and finance, mergers, marketing, labor relations, diversification, and public policy.

**TRN 4332 Surface Transportation 2—
Motor Carrier Management** (3 q.h.)

Management-oriented course on the regulated motor carrier industry. Includes equipment selection, finance, mergers, marketing, labor relations, routes, operations and control, and public policy.

**TRN 4333 Surface Transportation 3—
Marine Transportation** (3 q.h.)

Management-oriented course on the U.S. Merchant Marine. Includes international trade patterns, government promotion and regulation, technological innovations, port facilities, and labor relations.

**TRN 4334 Surface Transportation 4—
Private Trucking** (3 q.h.)

Management-oriented course on the formation of a private trucking operation. Includes legal guidelines, purchase versus lease, operations, and performance measurement.

TRN 4340 Air Transportation (3 q.h.)

Economics and regulation of air carriage certified by the Civil Aeronautics Board. Includes entry, operations, pricing, mergers, cost analysis, and financing.

TRN 4341 Urban Transportation (3 q.h.)

The scope and status of transportation in our metropolitan area. Examines the planning and financing of urban transportation systems, the role of local, state, and federal government units, and the problems of transit management.

**TRN 4342 Transportation Loss, Damage, and
Other Claims** (3 q.h.)

Rules, regulations, and other pertinent elements of transportation claims resulting from the loss or damage of cargo, overcharges and undercharges, and related carrier and shipper activities.

**TRN 4350 International Transportation and
Distribution Management** (3 q.h.)

Role of the United States in international transportation. Emphasizes the industry structure of two primary modes of international transportation—aviation and maritime. Also examines the major, indirect supporting businesses and agencies involved in the international movement of people and goods.

**TRN 4351 Case Studies in Transportation
Regulation I** (3 q.h.)

Intensive study of pertinent areas of transportation regulation and economics. Involves preparation of selected cases dealing with many areas of traffic law to develop an understanding of the Interstate Commerce Act and related statutes.

**TRN 4352 Case Studies in Transportation
Regulation 2** (3 q.h.)

Continuation of TRN 4351. *Prereq.* TRN 4351.

**TRN 4353 Case Studies in Transportation
Regulation 3** (3 q.h.)

Continuation of TRN 4352. *Prereq.* TRN 4352.



VIDEOTAPED MOCK INTERVIEWS

JOB HUNTING ?

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$\Delta_{\text{H}} = \text{travel time} - \text{time}$

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CAN



The Class of '83 hunts and hopes

doi:10.1017/S0022292412001611

[illegible]

City life

THESE

The Class of '83 hunts and hopes

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CONSTITUTION

Fig. 1. DNA probe.

0-6784-2711-9 \$2

CONCLUSIONS

Academic Policies and Services

Where to Get Help— Counseling Services

University College offers a wide variety of career and academic counseling services to assist students in making both educational and career decisions. The College does this by providing academic advisors and career counselors, by offering credit and noncredit career-planning workshops and special programs, and by serving as a link to other student support services offered by Northeastern University.

The services, courses, and programs outlined on the following pages have been designed with specific educational and/or career-planning issues in mind.

Academic and Counseling Services

Open House Programs

Individuals who are thinking about enrolling in University College for the first time are encouraged to attend an open house. Open houses introduce potential students to the many University College programs and services designed to meet the educational, job-related, and personal needs of adult, part-time students. They also orient new students to the University as a whole and address concerns that many students have about:

- course selection and registration
- financial aid
- student support services
- career planning

Students currently enrolled in University College are also invited to attend an open house.

Open houses ordinarily are scheduled each quarter at selected campus sites at or about the same time that registration takes place. Since

space is limited, persons who wish to attend should reserve a place by calling the Office of Academic and Student Affairs, telephone 617-437-2400.

Academic Advising

Academic advisors are available to talk with students about courses, transfer credit, degree requirements, and other matters of individual concern. University College advisors are present at the Boston and Burlington campuses weekdays from 8:30 a.m. to 7 p.m., by appointment.

At all other branch campuses, advisors are available by appointment on the evenings classes are in session, from 5:30 p.m. to 7 p.m. For an appointment at the Burlington campus, call 617-272-5500. For appointments at all other campuses, call 617-437-2400. During registration, advisors are available at all campuses to answer general questions. There is no charge for this service.

The Health Professions Advisory Committee provides counseling for students interested in taking courses to meet medical or dental school entrance requirements. For information on this type of counseling, call 617-437-2818.

Tutorial Services

University College offers tutorial assistance in several subjects. Tutoring, which is on a one-to-one basis, provides an opportunity for student and tutor to focus on specific problems that might not have been covered during class time. Students may request tutorial information from the Office of Academic and Student Affairs, 617-437-2400. A flyer describing tutorial services is also available at all campus locations.

Career Counseling Services

Career Counseling

Students in need of career counseling may call 617-437-2400 to arrange an appointment with a career counselor. This service is designed for students who need help in choosing a career or in developing effective job-hunting strategies. Career counselors also help students use additional services and programs offered by University College and by other offices at Northeastern

University. Additional career counseling services are provided by the Counseling and Testing Center. These services are described below.

Self-Assessment and Career Development

Often one of the strongest motivations for continuing education is the desire for career advancement or change. In order to help students develop career and educational planning skills, University College offers a 3-quarter-hour course in career development, *Self-Assessment and Career Development* (INT 4110). For more information, see the course description on page 148 of this *Bulletin*.

Job-Search Seminars

Each quarter the Career Development and Placement Office and the Office of Academic and Student Affairs offer a series of two-hour, evening, job-search seminars. The seminars are specifically designed for students who are currently looking for a job or anticipating a job change and who have identified the field or career area in which they would like to work.

These seminars are intended to help students assess their skills, develop effective job-search strategies, write résumés, and prepare for job interviews. Students who require assistance in making career decisions or are considering a career change should enroll in the *Self-Assessment and Career Development* course or make an appointment with a University College career counselor. Seminar schedules are announced in the student newsletter and in classes prior to each series. Students who wish to participate in the job-search seminars must reserve a place by calling the Department of Career Development and Placement at 617-437-2428.

Core Career Courses for Women

University College offers a special group of personal assessment and career development courses for women interested in a business career. Through these courses, women learn to match their skills and competencies to those needed in specific career areas in business. This process, in turn, helps a woman determine which specific jobs in business she is most suited to pursue. The courses are also designed to acquaint women with the organizational dynamics of business settings and to help them develop a

basic understanding of the quantitative and technical skills needed for various career areas in business.

A complete list of these courses may be found on page 148. They are open to any interested student.

Counseling and Testing Services

Location: 302 Ell Building

Telephone: 617-437-2142

Hours: Monday-Friday, 8:30 a.m.—4:30 p.m.

Tuesday, Wednesday, Thursday,

5:30 p.m.—8:30 p.m.

October–May

The Counseling and Testing Center at Northeastern provides a wide variety of services free of charge to all part-time students. Services for University College students include:

Personal Counseling

This involves discussing with a counselor such concerns as adjusting to being a college student (again or for the first time), getting along with people, feeling anxious or depressed, and problems concerning family, sex, drugs, or alcohol.

Educational-Vocational Counseling

This involves assisting students in making decisions about a choice of major or career. It typically involves an in-depth look at one's self, including one's strengths, aspirations, and values. Tests are often helpful in the process of self-understanding. The kinds of tests available include interest, ability, personality, and aptitude. This kind of planning is usually done individually with a counselor, although small groups may be organized if this approach seems more appropriate.

The goals of the Center's educational-vocational planning service complement those of the University College career-planning courses. Therefore, interested persons are encouraged to explore both options for career exploration and planning and then choose the service that seems best suited to their needs.

Study Skills Workshops

(Available during the day only.) Workshops are offered periodically to assist students in becoming more effective in organizing their time, in note-taking, in preparing for and taking exams, and in other areas related to effective academic performance.

Career and Graduate School Information

The Center maintains a reference room with information on a wide variety of careers and graduate and professional schools.

Career Placement Services

Location: 124 Ruggles Building

Telephone: 617-437-2428

Hours: Monday-Friday, 8:30 a.m.–4:30 p.m.

Tuesday, 8:30 a.m.–8 p.m.

October–May

The Office of Adult and Special Programs within Northeastern's Department of Career Development and Placement provides a number of free career placement services to all University College students. Among the services provided are evening job-search seminars, a reference library with company files and employee contacts, a job bank of employment opportunities, and panel presentations on careers of interest.

Students enrolled in a degree program are eligible for additional career services, such as job placement counseling, placement registration, and résumé referral to employers. In addition, seniors may take advantage of corporate, on-campus recruiting during the fall and winter quarters and a credential service for persons applying to graduate school.

The Placement Office is open one evening a week; additional evening hours may be arranged by appointment. Placement counselors also travel to the Burlington Suburban and Dedham campuses to see students by appointment. For more information, call 617-437-2428.

Admission and Registration

Open Enrollment

University College has an open enrollment policy that enables students to take most courses simply by registering for the course. Applications for admission, entrance examinations, and College Board Examination scores are not required. The open enrollment policy applies to both degree and nondegree students at University College. Credits earned for courses taken at University College may be applied to a degree program.

Students who are enrolled at University College and who decide to pursue a degree program must apply for admission to the program. See page 194 for more information on the admissions process. Special requirements apply to students entering the Bachelor of Science in Business Administration degree program. For information on the admissions process for this program, please see pages 21-24. Students must be admitted to a degree program in order to be eligible for financial aid. See page 203 for more information on obtaining financial aid.

Both degree and nondegree students are entitled to the student support services offered by University College.

Registration

Students may register for courses by reporting to any University College campus during the registration periods that are scheduled each quarter. It is not necessary to register at the campus where a particular course actually meets; students may register at any campus for a course scheduled at any other campus. All students must complete a registration form before attending class; attendance at class, even with the instructor's permission, does not constitute registration. Academic credit will not be awarded to students who are not properly registered. See the Academic Calendar on pages v-vii for a complete registration schedule.

Courses listed in this *Bulletin* are not necessarily offered each quarter. Each fall, winter, spring, and summer quarter the list of courses being offered is printed in a *University College Schedule Guide*. *Schedule Guides* are distributed at all campus locations. To request a schedule by mail, call 617-437-2400.

Quarter-Hour Credit

Northeastern University operates on a quarter-hour credit system. A quarter-hour credit is the equivalent of three quarters of a semester hour. Students who would like to take courses at Northeastern and then transfer these credits to another school are urged to receive permission from their advisor prior to registering.

Help with Course Selection

Academic advisors (see page 189) are available at all campuses, by appointment, to help students plan their academic programs and select courses. Students who have earned credits from other schools are urged to have their transcripts evaluated prior to the registration period to avoid duplicating course work completed elsewhere. During the official registration periods at all campuses, advisors are available without an appointment to answer general questions.

Prerequisites

Before registering for a course, students should read the course description in this *Bulletin* to determine if it is necessary to have taken a prerequisite course. In order to ensure academic success, students are strongly advised to adhere to course prerequisites.

Placement Tests

Placement tests are given to students enrolled in *Critical Writing I* (ENG 4110), *Business Writing and reports I* (ENG 4380), and *Technical Writing I* (TCC 4101) during the first class session. Some students may be requested to register for *Elements of Writing* (ENG 4011), a three-quarter-hour course offering additional help in writing, or *English for International Students* (ENG 4005, ENG 4006, or ENG 4007).

Students registering for *Mathematics I* (MTH 4110) must take a placement test on the first night of class. The results will determine if

the student should take *Basic Mathematics 1* and 2 (MTH 4001 and MTH 4002) prior to taking *Mathematics 1*. Students registering for *College Algebra 1* (MTH 4107) must also take a placement test at the first class meeting. Some students may be asked to register for *Introduction to Mathematics 1* and 2 (MTH 4081 and MTH 4082) for additional help in math.

International Students

Northeastern University is authorized under federal law to enroll nonimmigrant alien students. For information regarding eligibility to enroll in University College call 617-437-2400 or visit the International Student Office in 270 Holmes Hall, telephone 617-437-2310.

Maximum Course Load

New students may elect up to 12 quarter hours per quarter without special permission from the appropriate Program Director. Former students who are on the Dean's List may elect a maximum of 18 quarter hours per quarter without special permission.

Class Changes

University College reserves the right to cancel, divide, or combine classes when necessary. Although this policy ensures that students will almost never be excluded from a class because it is oversubscribed, it also means that a course may occasionally be canceled because of inadequate enrollment. Cancellations are more likely to occur among upper-level or advanced courses than among introductory courses. To avoid course cancellations, students are urged to preregister.

Pass/Fail Courses

Students may register for one *elective* course per quarter on a pass/fail basis. To be eligible for pass/fail status in a course, the student must be in good academic standing (not on academic probation) and must have completed 39 quarter hours of academic work. Thereafter, the student may register for one pass/fail course for each 15 quarter hours of successfully completed work. The student must also meet all prerequisites for the courses.

To be graded on the basis of pass/fail, the student must file a Pass/Fail Petition and have it

signed by an academic advisor. The Office of Academic and Student Affairs will send one copy to the Registrar, send one copy to the instructor, and retain one copy. Requests to take a course on a pass/fail basis must be made prior to the fourth class meeting.

Auditing Policy

Students are permitted to audit courses, but they must complete the usual registration forms and pay regular tuition fees. There is no reduction in fees for auditing. An auditor may participate in class discussion, complete papers and projects, and take tests and examinations for informal evaluation. However, regardless of the amount or quality of work completed, academic credit will not be granted at any time for an audited course.

The student's decision to audit a course must be communicated in writing to the Registrar prior to the fourth class meeting. Exceptions to this procedure cannot be approved without authorization by the University College Academic Standing Committee.

Withdrawal Policy

Students who wish to withdraw from a course must complete a Course Drop Form in the Registrar's Office or notify the Registrar in writing of their intention to withdraw prior to the week in which final examinations are given. These forms are available at all campus locations. If, after the first class meeting, a student misses three consecutive meetings of a course, he or she will automatically be withdrawn from the course by the Registrar.

Students who withdraw or are withdrawn from a course will have no record of the withdrawal on their transcripts. See page 199 for information on tuition refunds.

Applying for Admission to a Degree Program

Students who wish to be admitted to University College as a degree candidate must follow one of the following procedures.

Option 1

In general, students who want to apply for admission to a degree program must have:

- 1 Completed at least 18 quarter hours of credit, which may include transfer credit. This credit must include English courses ENG 4110, ENG 4111, and ENG 4112 or their equivalents.
- 2 A minimum grade-point average of at least 2.0 (C) at University College.
- 3 A high school diploma or a high school equivalency certificate (GED).

Students who meet these requirements must file an application for admission in the Office of Academic and Student Affairs or at any branch campus. Applications may also be submitted by mail. Call 617-437-2400 to obtain an application. Students will be notified of their acceptance by mail.

Option 2

Students who want to apply for admission but do not meet the above requirements must:

- 1 Complete an application for admission.
- 2 Submit the completed application and the high school transcript or GED certificate to the Office of Academic and Student Affairs.
- 3 Arrange an admission interview with an academic advisor. Day, evening, and branch campus appointments may be arranged by calling 617-437-2400.

Students must be admitted to a degree program in order to be eligible for financial aid.

Note: Students who wish to be admitted to the Bachelor of Science in Business Administration degree program must meet additional requirements, as listed on pages 21-24.

Graduation Requirements

Except for certain health professions programs, the requirement for graduation from University College is 174 quarter hours for a bachelor's degree and 96 quarter hours for an associate's degree, with attainment of a quality-point average of 2.0 (an average grade of C). Although the credits allowed for acceptable work completed elsewhere by transfer students count toward ful-

fillment of quantitative graduation requirements, neither the credits nor the grades earned in such courses are included in the quality-point computations for graduation. Course requirements for each degree are different and are outlined in this *Bulletin*.

Course Substitutions and Waivers

Students may request to have a required course in an academic program waived and to substitute another course in place of the required course. Such requests are not encouraged, although the University recognizes that students may occasionally have very good reasons for requesting such waivers. To request that a required course be waived, students must complete a Petition for Course Substitutions and Waivers and submit it to the Office of Academic and Student Affairs. Petitions are available at each campus location. Petitions are routinely forwarded to the appropriate Program Director. The Program Director reviews the request and notifies the student of the outcome. A copy of the completed request is kept in the student's file in the Office of Academic and Student Affairs.

Graduation with Honor

Bachelor's degree candidates who have demonstrated distinctly superior academic achievement will be graduated with honor, high honor, or with highest honor, depending on the final quality-point average obtained. To be considered for graduation with honor, a student must have completed a minimum of 72 quarter hours of work at University College. Courses transferred from other educational institutions are not considered in determining honor graduates.

Residence Requirement

Every candidate for the bachelor's or associate's degree must fulfill the minimum residence requirement. The residence requirement is defined as the satisfactory completion of at least 45 quarter hours of course work in University College immediately preceding graduation. At least 12 of the 45 quarter hours must be in the candidate's major field of study.

Since University College requires the completion of at least 45 quarter hours of credit in residence immediately preceding graduation, students may not take courses at any other institu-

tion during their senior year for the purpose of transferring credit.

Students whose enrollment in a degree program is interrupted for a period of one year or more will be reinstated in that program at the time of re-entry into University College.

In Absentia Status

If a student moves beyond a reasonable commuting distance from University College or its branch campuses but has completed 135 or more quarter hours of credit (including a maximum of 60 quarter hours of transfer credit), the Committee on Academic Standing will consider a petition to allow the student to complete his or her requirements for a University College degree at another approved college. The remaining courses must be completed within two years of the date of official approval of the student's *in absentia* status.

Senior Status Procedure

All potential graduates are polled during the fall quarter to determine their intention to graduate during the current academic year. To be considered for graduation in June, a student must return a Commencement Data Card prior to the start of the winter quarter of the academic year in which he or she expects to graduate. September graduates are polled during the month of June.

Throughout the academic year, the Office of Academic and Student Affairs issues Senior Status Reports on request to potential graduates in order to assist them with the selection of courses required for program completion. Seniors are encouraged to request a Senior Status Report during the summer prior to the academic year in which they plan to graduate. Petition forms for status reports are available at each campus location.

Credit by Examination During the Senior Year

CLEP or PEP examinations (see page 195) may be taken by students during their final year of study provided they have met the 45-quarter-hour residence requirement for graduation described above. Because of the time required for CLEP and PEP examinations to be graded and returned to the University, students requesting

June graduation must take their CLEP and PEP examinations no later than the winter quarter of their senior year.

Transfer Credit Policy

Students may transfer credit from accredited institutions of higher education when courses completed are applicable to the student's program in University College. The minimum course grade acceptable for transfer credit is C, or 2.0 on a four-point scale. An accredited institution of higher education is an institution having recognition and membership in one of the six regional accrediting associations recognized by the Council on Post-Secondary Accreditation.

Transfer Credit Procedure

Students who would like to obtain an evaluation of credits earned from another institution must file a Transfer Credit Petition with the Office of Academic and Student Affairs. The student must then write to the Registrar of the institution previously attended and request that an official transcript (one bearing that institution's seal) be forwarded to the Office of Academic and Student Affairs, University College, Northeastern University, 360 Huntington Avenue, Boston, MA 02115. Upon receipt of official transcripts, the Office of Academic and Student Affairs issues an evaluation of all credits as they apply to the student's program in University College. Official awarding of credit is recorded on the student's University College transcript when admission to a degree program is approved.

Validation of Required Upper-Level Business Courses for Transfer Credit

Students entering the Bachelor of Science in Business Administration degree program may be required to validate required upper-level business courses that they have taken outside the framework of the program.

"Validation" is the set of procedures that tests whether an upper-level course completed at the lower division of a bachelor's degree program should be accepted for transfer credit in the upper division of a bachelor's degree program recognized and approved by the American Assembly of Collegiate Schools of Business. The

Bachelor of Science in Business Administration program offered by University College conforms to all standards established by the American Assembly of Collegiate Schools of Business (AACSB). AACSB has been recognized by the Council for Post-Secondary Accreditation and by the United States Office of Education as the sole accrediting organization for university bachelor's and master's degree programs in business administration.

In general, students are able to validate previously earned course credits by taking a sequential course in a reserved section, a department-approved examination, or a CLEP (College Level Examination Program) or PEP (Proficiency Examination Program) examination.

For more information on course validation, see page 22. Students should talk with a University College academic advisor for information about the validation of upper-level business courses for transfer credit.

Evaluation of International Educational Credentials

Students requesting an evaluation of international educational credentials for transfer credit at University College will be charged a fee of \$40. The evaluation is issued by the Office of Academic and Student Affairs upon receipt of a Transfer Credit Petition, a completed Educational Chronology Form, official copies of all transcripts translated into English, and a check in the amount of \$40, payable to Northeastern University. The official assessment of international educational credentials is made in accordance with current standards for awarding transfer credit at University College or as recommended by the Center for International Higher Education Documentation. The fee is waived for any University College student who has enrolled in a degree program prior to requesting the evaluation.

Course(s) at Another College or University

Students who are enrolled at University College and want to complete one or more courses at another institution for transfer purposes must first file a petition to enroll in such courses with the Office of Academic and Student Affairs. Courses taken at other institutions may be disallowed unless a petition has been submitted and

approved. Seniors (students in their final year of study at University College) should refer to information about the residence requirement, described on page 193.

Credit by Examination

University College awards credit by examination, provided the examination does not duplicate previously earned academic credit. Credit is granted for successful completion of examinations currently available through the College Level Examination Program (CLEP) of the College Entrance Examination Board and through the Proficiency Examination Program (PEP) of the American College Testing Program. Both programs have been designed to help students obtain college-level credit for knowledge acquired through nontraditional means, such as on-the-job training; educational television; or correspondence, extension, or independent study. Information about these programs is available from the Office of Academic and Student Affairs at University College and from the Northeastern University Counseling and Testing Center.

Modern Language Proficiency Examination

Students may be eligible to receive credit for proficiency in a modern language. Examinations are currently offered in French, Spanish, German, and Italian. Students should contact the Liberal Arts Program office, telephone 617-437-2416, for more information.

Noncollegiate Experience Credit

Some liberal arts students may petition for noncollegiate experience credit. See page 84 for details.

Noncollegiate experience credit is not available for business courses, except through CLEP or PEP examinations. (See Credit by Examination, above.)

Credit cannot be awarded through Noncollegiate Experience Petitions or examinations when an appropriate examination is available through CLEP or PEP.

Credit for Extra-institutional Learning

Extra-institutional learning is learning that takes place outside the sponsorship of legally authorized and accredited post-secondary educational

institutions. The term applies to learning acquired from formal courses sponsored by associations, governments, business, and industry.

In awarding credit for extra-institutional learning, University College uses the *National Guide to Credit Recommendations for Noncollegiate Courses*, published annually by the American Council on Education.

Students applying for credit for extra-institutional learning must submit a Transfer Credit Petition and provide official credentials from the sponsoring noneducational organization to the Office of Academic and Student Affairs. The credit may be applied toward degree requirements at University College if recommended in the *National Guide*, provided credit is not otherwise obtainable through CLEP, PEP, or noncollegiate experience credit programs at University College.

Grading System

A student's work in each course is evaluated by the instructor, who awards a letter grade at the end of the quarter. This grade is officially recorded by the Registrar's Office. The grades and symbols used are given below, together with the numerical equivalents used for computing quality-point averages:

A	(4.000)
A-	(3.667)
B+	(3.333)
B	(3.000)
B-	(2.667)
C+	(2.333)
C	(2.000)
C-	(1.667)
D+	(1.333)
D	(1.000)
D-	(.667)
F	(0)
I	Incomplete
L	Audit (no credit)
S	Satisfactory (pass/fail grade)
U	Unsatisfactory (pass/fail grade)
X	Incomplete (pass/fail grade)
*	Grade not received

Grade Reports and Transcripts

All efforts are made to mail grades prior to the beginning of the following quarter. A supplementary grade report is issued when a missing grade or a grade change is received. University regulations prohibit issuing grades by telephone. Grade reports of degree candidates indicate both their quarterly quality-point average and their cumulative quality-point average.

Students may obtain a transcript of their grades by making a request in writing to the Registrar's Office, 120 Hayden Hall, Northeastern University, 360 Huntington Avenue, Boston, MA 02115. Unofficial transcripts are issued free of charge; official transcripts bearing the University seal cost \$2.

Quality-Point Average

The method of figuring the quality-point average is: the numerical equivalent of each grade received is multiplied by the credit hours earned; the quality points are added together, then divided by the student's total quarter hours. An example follows:

Grade Achieved	Numerical Equivalent	Credit Hours	Quality Points
A	4.000	3	12.0
B-	2.667	3	8.0
C	2.000	6	12.0
F	0.000	3	0.0

$$\frac{\text{Quality-Point Average}}{\text{Average}} = \frac{\text{Total Quality Points (32.0)}}{\text{Total Credit Hours (15)}} = 2.13$$

Pass/fail grades (S, U, and X), incompletes (I), and audits (L) are not included in the quality-point average. Similarly, transfer credits are not included in quality-point averages. However, the total earned hours appearing on the student's transcript include both transfer credits and S grades.

A cumulative grade-point average below 2.0 is unacceptable and does not allow a student to continue in University College or to receive a degree from Northeastern University. The F grade is a failure and requires repetition of the course in its entirety.

Academic Monitoring

Degree candidates with 45 quarter hours of credit are monitored quarterly. Those whose quality-point average fall below 2.0 are contacted

and offered all possible assistance by the Office of Academic and Student Affairs. They will continue to be monitored until their quality-point average is 2.0 or better. Students who feel they would benefit from academic assistance are encouraged to call 617-437-2400 to arrange an appointment with an advisor.

The I Grade

The I grade, or incomplete, may be given only when the student fails to complete a major requirement of a course, such as a term paper or a final exam, but has been in regular attendance. Students who have missed a substantial number of class meetings without the instructor's permission receive a grade of W. An instructor may decide that a student has done so poorly in the course that even a perfect grade in a make-up final examination could not raise the grade from F; in this case F is the proper grade, regardless of the missed final examination.

All deficiencies must be made up in the manner prescribed by the instructor no later than 12 months following the recording of the I grade. Students requesting an exception to this policy must petition the University College Academic Standing Committee in writing. A student may also elect to repeat the course at his or her expense.

Pass/Fail Grades

Satisfactory completion of work in all courses taken on a pass/fail basis is designated on the transcript by the letter S. Unsatisfactory work is designated on the transcript by the letter U. Any unsatisfactory grade must be handled according to the existing policy of University College but may never be cleared by enrolling in the same course on the basis of the pass/fail system of grading.

An incomplete in a course taken on a pass/fail basis is designated by the letter X on the transcript and is treated according to the normal procedure for grades of incomplete.

Dean's List

All degree candidates who have taken a minimum of 27 quarter hours in three consecutive quarters (for example, fall, winter, and spring) and who have completed all their courses with a quality-point average of 3.0 or better are placed

on the Dean's List. These students receive certificates of commendation from the Dean of University College. See page 193 for information on graduation with honor.

Attendance, Homework, and Examinations

Students are expected to attend all meetings of the classes in which they are registered unless excused in advance. Absence from regularly scheduled classes seriously affects the student's academic standing. A student who is consistently absent from class will be withdrawn from the course by the Registrar. All students who are absent from school because of extended illness and who do not wish to be withdrawn should inform the Registrar's Office in writing.

Homework

The specific work required for each course in University College is determined by the instructor. In general, it is expected that University College students spend an average of six to eight hours per week outside of class on assignments for each course. Students who are absent are responsible for obtaining their homework assignments from their instructors or from other students. Homework assignments are not available from the Office of Academic and Student Affairs.

Examinations

Tests are scheduled throughout each quarter at the option of the instructor and are regarded as part of the term's course work. A final examination is held at the end of each quarter in each course unless an announcement is made to the contrary.

Missed Final Examinations

Students who miss a final examination are given a grade of I (incomplete). Students do not automatically have the right to make up a missed final examination. Students must petition for this privilege and pay a fee of \$40 for each make-up examination. Petitions are available at each campus location. Students are notified whether or not their petition has been approved prior to the date of the make-up examination.

Students who make up a missed final examination will have the appropriate letter or pass/fail grade substituted for the I grade on their transcripts.

Miscellaneous Policies

Students' Rights and Responsibilities

The University subscribes to the view that all students have certain rights and freedoms. For these reasons, the University has adopted and published specific policies and procedures governing student rights and freedoms, general conduct, student discipline, disclosure of information from student records, and University judicial procedures. Judicial procedures are related to issues of discipline and conduct, the right of students to appeal judgments of their academic performance, grievances based on the fact that a student is handicapped, and allegations of sexual harassment. All policies and procedures governing the above matters may be found in the *University College/School of Engineering Technology Student Handbook*. Copies are available in the Office of Academic and Student Affairs or by calling 617-437-2400. In general, copies are also available at each branch campus location.

Family Educational Rights and Privacy Act

In accordance with the Family Educational Rights and Privacy Act of 1974, Northeastern University permits students to inspect their records whenever appropriate and to challenge specific parts of them when they feel it necessary. Specific details of the law as it applies to Northeastern are available in the *University College/School of Engineering Technology Student Handbook*.

Disciplinary Action

The Committee on Regulations and Discipline has the authority to dismiss, place on probation, or remove from the list of degree candidates any student who, because of disruptive or illegal conduct or poor character, is considered an unsuitable member of the College community. The Committee on Regulations and Discipline is an *ad hoc* subcommittee of the University College Committee on Academic Standing. It is convened at the request of the Committee on Academic Standing.

Change of Address

Change of address and/or name should be reported in writing immediately to the Registrar's

Office, 120 Hayden Hall, Northeastern University, 360 Huntington Avenue, Boston, MA 02115.

Attendance at Commencement

Attendance at commencement for all University College degree candidates is optional. Degree candidates are polled regarding their intention to attend commencement by the Northeastern University Commencement Committee during the spring quarter.

Changes in Requirements

The continuing development of University College requires frequent revisions of the curricula. When no undue and unusual hardship is imposed on students because of these changes, students are expected to meet the requirements of the most current *Bulletin*. If a particular student finds it impossible to meet those requirements, the *Bulletin* for the year in which he or she declared a major is binding.

Academic programs, course content, and rules and regulations are subject to change without notice.

Tuition and Fees

Tuition and fees are refundable only as stated under "Refund of Tuition." Checks and drafts for all charges are to be made to the order of Northeastern University.

Tuition for all credit courses is \$85 per quarter hour of credit. Charges for registration and tuition for special courses are at the rate specified for each course. There is no reduction in fees for auditing courses.

Noncredit courses are charged at quarter-hour rates comparable to those of credit courses meeting on an equivalent contact-hour schedule.

Students are not permitted to attend class sessions or take any examination or test until they have paid their tuition fees or have made satisfactory arrangements for payment.

It is the student's responsibility to ensure that all tuition charges and fees are paid when due. If a bill has not been received prior to the start of classes each quarter, the student should come in person to the Bursar's Office, where a bill will be processed.

Any discrepancies in billing should be immediately brought to the attention of the Bursar's Office. If there is a billing problem, the undisputed portion of the bill should be paid on time to avoid any additional late fees. Failure to receive a bill through the mail or to pay the undisputed portion of the bill is not justification for late payment of amounts actually owed.

Students will not be advanced in class standing or permitted to re-enroll in the University nor will degrees be conferred until all financial obligations to the University have been met.

**Tuition for Courses in Other
Northeastern Departments or Colleges**

University College students assigned to courses in other departments or colleges of the university are charged the tuition fees effective in the departments or colleges in which they are enrolled.

Initial Registration Fee

A nonrefundable \$10 registration fee for first-time students is billed with tuition fees.

Tuition Budget Payment Plans

Occasionally situations develop—usually beyond the control of the student—that make it difficult to meet the payments in the manner outlined above. Under such circumstances, the student is advised to contact the Bursar's Office to arrange for deferred payment. The only deferred payment plan offered is as follows and applies only to the amount owed for the current quarter:

First payment	1/3 due first week of quarter
Second payment	1/3 due approx. fourth week of quarter
Balance	1/3 due approx. eighth week of quarter

Such arrangements should be made before the end of the first week of the quarter or within one week of the date of registration if the student enters late. Deferred payment of tuition entails a fee of \$10, which is levied on all accounts not paid by the end of the second week of classes. Failure to take immediate action will result in a late payment fee of \$50.

Tuition Underwritten by Employers

An increasing number of companies are underwriting part or all of the cost of tuition of students in their employ. In cases where payment is

to be made directly by the employer to the University, the student should furnish the Bursar's Office with a purchase order covering registration or a statement from an officer of the company certifying that the company is underwriting the tuition. In cases where students are being reimbursed by their employer, tuition must be paid by the student according to the prescribed regulations to avoid late payment charges.

Veterans' Benefits

Any veteran covered by Public Law 89-358 should report to 126 Hayden Hall to fill out the proper enrollment forms.

Late Payment Fee

Bills for tuition and fees are payable in accordance with the due date shown. A late payment fee of \$50 is charged for failure to make payments in accordance with the prescribed regulations.

Refund of Tuition

The general policy in all schools and colleges of the University with respect to refunds of tuition is as follows:

The University provides all instruction on an academic-quarter basis, for which students pay at the beginning of each quarter. Tuition refunds are granted through the first four weeks of a quarter only when specific conditions are met. Questions regarding refunds should be discussed with the Bursar.

Tuition refunds are granted only on the basis of the date appearing on the official withdrawal application when filed with the Registrar in 120 Hayden Hall. Nonattendance does not constitute official withdrawal.

Refunds are granted in accordance with the following schedule:

Official withdrawal filed within	Percentage of tuition
First week of quarter	100%
Second week of quarter	75%
Third week of quarter	50%
Fourth week of quarter	25%

Student Center Fee

All students in University College on the Huntington Avenue campus are charged \$.75 each quarter for the services available in the Student Center.

Laboratory Fees

Students enrolled in courses that carry a laboratory fee must purchase a Laboratory Fee and Deposit Card from the Cashier's Office (\$15 for extra cards).

A fee of \$40 is charged for biology courses and for those health professions courses that include a laboratory. For chemistry courses, cards cost \$40 per quarter with the possibility of a \$5 refund at the end of the quarter, depending on breakage. Upon completion of the course or withdrawal during the quarter, the student must check his or her status with the laboratory attendant. The Cashier's Office will then refund any unused balance shown on the card.

A laboratory fee of \$40 is also charged for film and photography courses, for some art studio courses, for arts and crafts courses, and for law enforcement students who enroll in a forensic laboratory. A \$40 fee is charged for the food preparation course in the hotel and restaurant management program.

Music students enrolled in a music tutorial pay a special rate. For details contact Charles Mokotoff, University College Music Coordinator, 307 Ell Building, telephone 617-437-2440 or 437-2442.

Graduation Fee

The University graduation fee, charged to those who are candidates for the bachelor's or associate's degree, is \$40, payable on or before May 1 of the year in which the student expects to graduate.

Missed Final Examination Fee

Students absent from the regularly scheduled final examination at the end of a course may petition for a "Missed Final Examination." The fee for each examination requested by the student is \$40. The fee must be paid when the petition is filed in the Office of Academic and Student Affairs.

Transcripts

Students may request official transcripts of their grades at the Registrar's Office. There is a charge of \$2 per copy, payable in advance. Unofficial transcripts are issued free of charge.

Scholarships

The following University College and School of Engineering Technology scholarships and awards are available to students who have been accepted as degree candidates and are in good academic standing.

Scholarships are awarded once a year by the Scholarship Committee. Final selection of scholarship recipients is usually made in late May, followed by the awarding of the scholarships in late June or early July. Funds are usually applied to tuition expenses for the following academic year. Awards range in amount from \$250 to \$700.

Application Procedure

In January, a mailing list of students who have requested applications is prepared and applications are mailed out with the stipulation that they be completed and returned to the Office of the Dean by March 31. A student can be placed on the January mailing list by calling 617-437-2400 and leaving his or her name, address, and student ID number with the receptionist.

Electronics Industries Personnel Association Scholarship

This scholarship was established in 1980 through the generosity of the Electronics Industries Personnel Association. The income is awarded annually to one or more students whose studies, to a significant extent, are in the field of human resources management at University College. Recipients shall demonstrate financial need, soundness of character, and academic stability.

Eva Needle Memorial Scholarship

The Eva Needle Memorial Scholarship Fund was established in 1965 with the aid of the Norman Knight Charitable Foundation and is maintained through the generosity of the friends of Bob and Ted Needle in memory of their mother. The income from the fund is awarded annually to a deserving student in the accounting program

who demonstrates superior academic achievement. The recipient is selected jointly by Ted Needle, a long-standing member of University College's accounting faculty, and the Scholarship Committee.

H. Patricia Taylor Scholarship Fund

The H. Patricia Taylor Scholarship Fund was established in 1974 by H. Patricia Taylor, a graduate of University College, and her husband, Harry C. Taylor, a graduate of the School of Business. The scholarship expresses their appreciation for financial assistance made available to Mrs. Taylor while obtaining her degree and is an attempt to provide similar funds to assist others in realizing their potential through higher education. The income from the fund is awarded annually to a student enrolled in University College or the School of Engineering Technology who demonstrates financial need and academic stability and who meets certain other conditions of eligibility.

Harry Olins Memorial Scholarship

The Harry Olins Memorial Scholarship Fund was established as an expression of firm belief in University College students and "what they stand for." The fund, presented by Mrs. Olins in recognition of her husband's long service on the business faculty, makes available an annual tuition award to students who, in terms of scholastic achievement, character, and personal need, best typify the spirit of Northeastern University. To be eligible for this award, the student must be a business administration degree candidate and carry a full academic load during the school year.

Kappa Tau Phi Scholarships

The Kappa Tau Phi Sorority Scholarship Fund annually makes scholarship awards available to women students in the science, business, engineering, and liberal arts programs who rank highest at the end of the upper-middle year. In the event that the chosen student is eligible for an award of greater monetary value, the award is made to the next highest-ranking woman student. To be eligible for this scholarship, the student must be enrolled in a course meeting at least two evenings per week and must be a can-

didate for a bachelor's degree. In determining the recipient, grades of all courses completed in prior years shall be considered.

Martin Luther King, Jr., Scholarships

This scholarship fund was established in 1969 in memory of the late Reverend Martin Luther King, Jr. Awards are made, as openings occur, to a limited number of adults from minority groups who would otherwise be unable to continue their education. Stipends can cover tuition expenses not to exceed 6 quarter hours in any academic quarter (excluding summer quarter). Northeastern University's Office of Financial Aid, located in 254 Richards Hall, administers these scholarships.

Professor Joseph A. Mullen Scholarship

The Massachusetts Chapter of the American Society for Training and Development has established a fund to provide annual scholarship awards to deserving part-time students upon the recommendation of the Dean of University College.

Roberta Macycove Wasserman Memorial Scholarship

This scholarship was established in 1976 through the generosity of family members and friends of Roberta Macycove Wasserman, who, at the time of her death in 1975, was pursuing liberal arts studies within University College. The income from the fund is awarded annually to a deserving female student who is a homemaker with family responsibilities and who is pursuing part-time studies within University College. The recipient shall demonstrate financial need, soundness of character, and academic stability.

Sigma Epsilon Rho Honor Society Scholarship Award

The Sigma Epsilon Rho Honor Society Scholarship Award, established in 1974 by the membership of the Society, is awarded annually to undergraduate students of University College or the School of Engineering Technology. Eligible students must have a cumulative quality-point average of 3.0 or better after completing 75 percent or more of their required studies.

Timothy F. Moran Scholarship Fund

This scholarship fund was established upon the retirement of Dean Timothy F. Moran, Associate Dean at University College and Director of the Law Enforcement programs. During his second career as an educator, Dean Moran, a retired state police officer, was an innovator and leader in the education of law enforcement officers both in New England and throughout the world. His former students, colleagues, and friends made substantial contributions to establish this fund in his honor. This scholarship is awarded annually to students majoring in law enforcement, security, or corrections who demonstrate academic excellence and financial need.

Transportation Club of New England Scholarship

The Transportation Club of New England provides approximately eight scholarships annually for persons employed in transportation and industry traffic departments. Scholarships are applicable toward tuition, books, and incidental expenses involved in transportation management courses. Their purpose is to afford a limited number of people an opportunity to expand and improve their education by systematic study of transportation and distribution management. Scholarships are administered cooperatively with the Scholarship Committee of the Transportation Club of New England. Applications may be secured from and filed with Frank Smith, Secretary, Transportation Club of New England, P.O. Box 121, Reading, MA 01867. Each applicant must be sponsored by a member of the Transportation Club.

University College and the School of Engineering Technology Faculty Society Memorial Scholarship Awards

The Faculty Society of University College and the School of Engineering Technology offers two awards annually, primarily for excellence in studies, to bachelor's degree candidates in University College and the School of Engineering Technology who have carried and are currently carrying a minimum of 24 quarter hours annually. Applications, available during the winter quarter, must be returned before the spring quarter. These awards are given in commemoration of the Faculty Society's deceased members.

U.S. Navy Field Training Supervisors Association Memorial Scholarship

A scholarship fund has been established through the generosity of the U.S. Navy Field Training Supervisors Association in commemoration of the Association's deceased members. The scholarship is awarded annually to a deserving student, selected by the Scholarship Committee, who is a management major working toward a bachelor's degree in the evening program at University College.

Vincent A. Forte Memorial Scholarship

This scholarship was established in 1985 in memory of Vincent A. Forte, a graduate of Northeastern University. The endowment funds were provided through the generosity of his family, friends, and associates. Forte was an ambitious student pursuing a full-time business career while attending school part-time. He received an associate's degree from Lincoln Institute in 1957, a Bachelor of Business Administration degree in 1958, and a Master of Business Administration in 1967. The income from this fund is awarded to undergraduate students in University College who are pursuing a bachelor's degree in business, who demonstrate financial need, and who are maintaining a cumulative quality-point average of 3.0 or better after completing at least 44 quarter hours of credit.

William J. McGovern Memorial Scholarship

The William J. McGovern Memorial Scholarship was established in 1978 by an anonymous donor to honor the memory of William J. McGovern. The donor wishes to assist others in realizing their potential through higher education. The income from this scholarship benefits worthy undergraduate students actively pursuing studies in University College or the School of Engineering Technology. Recipients must have declared a major, demonstrate financial need and academic achievement, and exhibit a high level of professional promise.

Awards

John W. Robbins Prize

The John W. Robbins Prize was established in 1984 under the terms of the will of the late Lena C. Robbins, in memory of her husband, John W. Robbins, an alumnus of Northeastern University. The income from this memorial gift is awarded annually to the outstanding student (Class Marshall) of the graduating class of University College.

Financial Aid

The Office of Financial Aid, located in 254 Richards Hall, offers several types of assistance to part-time students. All awards are based on financial need. Aid granted from programs sponsored by the federal government is dependent upon the amount of funding allocated to Northeastern University. The University does not award financial assistance in any form to students who are not citizens or permanent residents of the United States. All part-time students who wish to apply for financial aid and who have not declared a major must submit a Certification of Intention to Complete a Degree Form, available at the University College Office of Academic and Student Affairs, 180 Ruggles Building.

Satisfactory Academic Progress for Financial Aid Recipients

Recipients of financial aid are required to make satisfactory academic progress in order to continue their eligibility for aid. University College defines "satisfactory academic progress" as:

- a minimum course load of 6 credit hours per quarter
- a minimum average of C, or 2.0, in these courses
- a cumulative academic record in any given academic year (September through June) that reflects that the financial aid recipient has registered for a minimum of 18 quarter hours of credit and satisfactorily completed at least 12 quarter hours of credit with an overall quality-point average of 2.0 or better

If, at the end of any given academic year, a student receiving financial aid has failed to make

satisfactory academic progress toward his or her degree, the Office of Financial Aid will be notified by University College.

Pell Grant

The Pell Grant Program is a federal aid program designed to provide financial assistance to degree candidates who need it to attend post-high school educational institutions. Pell Grants are intended to be the "floor" of a financial aid package and may be combined with other forms of aid in order to meet the full costs of education. The Pell Grant is an award and, unlike a loan, does not have to be repaid. Half-time students taking at least 6 credit hours each quarter may apply for awards ranging up to one half the maximum allowable by law, contingent upon the total cost of education. Students must also have a high school diploma or GED and be enrolled with the intention of receiving a degree or a certificate. Applications are available in the Office of Financial Aid, 275 Richards Hall, or by writing to the Pell Grant Program, P.O. Box 84, Washington, DC 20044.

Massachusetts State Scholarship

Massachusetts residents enrolled as full-time students (i.e., taking 12 credit hours per quarter for fall, winter, and spring) may be eligible for a Massachusetts State Scholarship. To apply, students must submit a Massachusetts Financial Aid Form (MFAF) for residents of Massachusetts. The deadline date for applications is March 1. Massachusetts State Scholarships are awarded based on need as determined by the Massachusetts Financial Aid Form.

Adult Learners Program

The Massachusetts Board of Regents of Higher Education has established the Massachusetts Adult Learners Program as a need-based, state-funded, financial aid program designed primarily to assist Aid for Dependent Children (AFDC) recipients in obtaining a college education. The amount of each award varies depending on the applicant's demonstrated need. The maximum award is the same as the Massachusetts State Scholarship, which is \$1,460.

To be considered for the program, applicants must be full- or part-time undergraduate students at Northeastern, taking at least one

3-quarter-hour course. They must also have been permanent, legal residents of Massachusetts for one year prior to receiving the award.

Awards are made only to current AFDC recipients and are made on a first-come, first-served basis. Applications are available at the Office of Financial Aid.

Guaranteed Student Loan Program

The Guaranteed Student Loan Program enables a student to borrow a maximum of \$2,500 per academic year directly from a bank, credit union, or other participating lender in the student's home community. The loan is guaranteed by a state or private nonprofit agency and is insured by the federal government. The interest on the loan will be subsidized by the federal government while the student is in school. **This loan must be repaid.**

Students whose families have an adjusted gross income below \$30,000 will be eligible for a loan if they are enrolled or have been accepted for enrollment at least half time in an institution of higher education and are citizens or nationals of the United States. Students whose families exceed this income ceiling may be eligible if they can show financial need in accordance with U.S. Department of Education guidelines. All students are eligible for federal interest benefits. Under these benefits, the federal government will pay the interest until the student begins repaying the loan.

The legal maximum loan borrowed through the Guaranteed Student Loan Program for any single academic year is \$2,500. The maximum loan for an entire undergraduate program is \$12,500.

The maximum loan amount in one academic year may never exceed the cost of education, less other financial aid received. In practice, however, the Guarantee Agency in the state where the loan is written may set loan limits less than these maximums. In the final analysis, the lender decides the amount of the loan.

Repayment of a Guaranteed Loan usually begins six months after a student withdraws or graduates from an educational institution or ceases to carry at least a half-time course load. The repayment period may be as long as ten years. The amount of the payments depends

upon the size of the debt and the student's ability to pay; in most cases, the borrower must pay at least \$600 per year.

During the repayment period, the loan carries a simple interest rate of 8 percent per annum, which is paid by the borrower.

Note: *For students who have previously participated in the Guaranteed Student Loan Program and who have outstanding loans at 7 or 9 percent, the interest rate on subsequent loans will continue to be 7 or 9 percent.*

Repayment on loans may be deferred if the borrower returns to at least half-time study at an eligible educational institution. Deferment of repayment is also allowed for up to three years of service in the armed forces, Peace Corps, or full-time programs conducted by ACTION. In most cases, the actual repayment schedule will be established by the lender shortly after the borrower leaves school.

Students who borrow funds through the Guaranteed Student Loan Program are subject to the legal responsibilities listed below:

- 1 Students must report any of the following changes to the lending institution:
 - a withdrawal from school
 - b transfer to another school
 - c reduction of course load to less than half time
 - d change of address or parents' address
 - e change of name
- 2 Students are liable for any false information that they report on the application.
- 3 Students must use the loan funds for educational purposes only.
- 4 If a student fails to repay the loan as agreed under the Federally Insured Loan Program regulations, legal action can result.

Failure to comply with any of the above responsibilities could make a student ineligible for any future loans from the program.

Additional information about financial aid is available from the Office of Financial Aid, 254 Richards Hall, 617-437-3190.

All federal financial aid programs are subject to change depending on adequate and continuing federal support.

Student Activities

Purpose

The purposes of part-time student activities are to provide opportunities for the development and pursuit of cultural interests and professional objectives, to encourage the development of leadership activities and skills, to enable the student to identify more closely with the University, and to include the family as an important and vital motivating force in the part-time student's educational career.

Students who are interested in starting clubs related to their careers and professional goals should call the Office of Academic and Student Affairs, telephone 617-437-2400, for more information.

Sigma Epsilon Rho Honor Society

Sigma Epsilon Rho is the University College honor society. Its purposes are to promote acquaintance and good fellowship among those students who have attained highest scholastic standing in the College; to stimulate the student body to higher scholastic accomplishment through the bearing, influence, and work of these selected men and women; to develop methods of mutual improvement and advancement among members; and to support high moral, professional, and scholastic ideals.

Only honor graduates or seniors with honor standing at the end of the junior year are eligible for admission to the Society. Admission is by invitation after nomination by the Society.

Gymnasium Facilities

Part-time students may use the gymnasium facilities from 4 to 9:30 p.m., Monday through Friday, and during all open hours on Saturday, Sunday, and holidays. A valid Northeastern student identification card and a photo identification card must be presented to gain access to the facilities.

Specific schedules for use of the pool, Nautilus and Universal weight rooms, indoor track and cage, gymnasium, gymnastics room, and wrestling room are available at the beginning of each quarter in the Intramural Sports Office, 110 Cabot.

Alumni Association

More than 100,000 alumni are united within the Alumni Association, created to establish a mutually beneficial relationship between Northeastern and its graduates. The Association is governed by an Executive Committee elected from the alumni community. Membership in the Association is automatic upon graduation.

The Association is headquartered in the Office of Alumni Relations, 125 Richards Hall. The official records and addresses of alumni are maintained in the Office of Alumni Records, 411 Huntington Plaza.

Activities of the Association include the Homecoming celebration, presentation of the Outstanding Alumni Awards, and the annual presentation of Professional Promise Awards to outstanding seniors in each of the Colleges. The Alumni Office also is involved in establishing diverse enrichment and education programs to meet the contemporary vocational and avocational needs of Northeastern's graduates. The Alumni Association has also initiated a successful group travel program to provide the alumni of Northeastern with interesting, economical opportunities in foreign travel. Notice of all activities is provided in the Northeastern alumni magazine and in special publications.

Regional alumni clubs have been established from coast to coast. All alumni are eligible to become members of these organizations. The clubs meet periodically with a varied program, often in conjunction with professional and athletic events, faculty visits, and service projects. Alumni class organizations conduct reunions for their respective classes every five years.

The Association also sponsors and assists constituent organizations that focus on common professional and avocational interests and college affiliations. These groups have their own officers and conduct various programs throughout the year.

In addition, alumni volunteers in many metropolitan areas across the nation represent the Admissions Office at high schools and community colleges.



General Information

The University

Founded in 1898, Northeastern University is incorporated as a privately endowed, nonsectarian institution of higher learning under the General Laws of Massachusetts. By special enactment, the State Legislature has given the University general degree-granting powers. The University is governed by a Board of Trustees elected by and from the Northeastern University Corporation, a body of nearly 200 distinguished business and professional men and women.

From its beginning, Northeastern University's dominant purpose has been to identify community educational needs and to meet those needs in distinctive and serviceable ways. The University has not duplicated the programs of other institutions, but has pioneered new areas of educational service.

A distinctive feature of Northeastern University is its cooperative plan of education, under which students alternate periods of work and study. This time-tested method of education offers students the opportunity to gain valuable practical experience as an integral part of their college programs and to contribute to the financing of their education. All of Northeastern's undergraduate day colleges operate on the cooperative plan, which requires five years for the student to earn a degree. The College of Arts and Sciences also offers a four-year, non-cooperative option. Several of Northeastern's graduate schools have structured their programs to include the features of cooperative education.

In the field of adult education, programs of study have been developed to meet a variety of needs. University College offers evening courses — offered by the University since 1906 — and adult day courses leading to certificates and to associate's and bachelor's degrees. In addition to offering day undergraduate programs in computer technology, electrical engineering, and

mechanical engineering technology, the School of Engineering Technology offers evening/part-time certificates, associate's degree, and bachelor's degree programs in technological areas. All formal courses of study leading to degrees through part-time programs are approved by the Basic College facilities concerned and are governed by the same qualitative and quantitative standards as the regular day curricula. Courses are scheduled in the day and evening at Northeastern's campuses in Boston, Burlington, and Dedham. Evening courses are also scheduled in Belmont, Brockton, Chelmsford, Framingham, Lynnfield, Marlboro, Marshfield, Milford, Revere, Westwood, and Weymouth.

For more information about the undergraduate colleges, their programs, or the cooperative plan of education, contact the Admissions Office, Northeastern University, 360 Huntington Avenue, Boston, MA 02115, telephone 617-437-2200.

Undergraduate Colleges

Boston-Bouvé College of Human Development Professions

Offers programs leading to the Bachelor of Science in Education in early childhood education, elementary education (with a minor in special education), human services, physical education, school and community health education, secondary education, and speech and hearing; the Bachelor of Science in Recreation and Leisure Studies; and the Bachelor of Science in Physical Therapy. For more information, call 617-437-2200.

College of Arts and Sciences

Offers programs in the arts, humanities, social sciences, and mathematics/sciences leading to the Bachelor of Arts and Bachelor of Science degrees. Programs are normally four years in length on a full-time plan or five years in length on the cooperative plan. For more information, call 617-437-3980.

College of Business Administration

Offers a five-year, cooperative education program leading to the Bachelor of Science in Business Administration. Students complete a six-course concentration in accounting, human

resources management, marketing, finance and insurance, management, international business administration, entrepreneurship and new venture management, transportation and physical distribution management, or a self-designed concentration. For more information, call 617-437-2200.

College of Computer Science

Offers a five-year, cooperative education program in computer science leading to the Bachelor of Science in Computer Science. Areas of concentration include artificial intelligence, data bases, languages, and systems. For more information, call 617-437-2462.

College of Criminal Justice

Offers a five-year, cooperative education program leading to the Bachelor of Science degree. For more information, call 617-437-3327.

College of Engineering

Offers five-year, cooperative education programs in chemical, civil, electrical (including a power systems option and a computer engineering option), industrial, and mechanical engineering leading to the Bachelor of Science with specification according to the department. A more general program leading to the Bachelor of Science without specification is also offered. For highly qualified students, the electrical and computer engineering, mechanical engineering, and industrial engineering and information systems departments offer five-year programs leading to the bachelor's and the master's degree; students carry course overloads beginning in the third year. The College also offers a six-year, part-time evening program leading to the Bachelor of Science degree in civil, electrical, or mechanical engineering. For more information, call 617-437-2154.

College of Nursing

Offers a five-year, cooperative education program leading to the Bachelor of Science in Nursing. The program is accredited by the National League for Nursing. For more information, call 617-437-3102.

College of Pharmacy and Allied Health Professions

Offers five-year, cooperative education programs leading to the Bachelor of Science in Pharmacy, Respiratory Therapy, and Toxicology, and to the Bachelor of Science with specification in medical laboratory science and health record administration. Associate's degree programs are offered in medical laboratory science, respiratory therapy, and dental hygiene. The College also offers post-baccalaureate certificate programs for physicians' assistants, health record administrators, and respiratory therapists. For more information, call 617-437-3321.

School of Engineering Technology

School of Engineering Technology, a division of the College of Engineering, offers engineering technology programs leading to the Associate in Engineering, Associate in Science, and Bachelor of Engineering Technology degrees. Programs include a full-time, day curriculum on the cooperative plan leading to the Bachelor of Engineering Technology in mechanical and electrical engineering technology, and in computer technology and aerospace maintenance engineering technology. The School also offers a part-time, evening program leading to the Associate in Engineering and the Bachelor of Engineering Technology in civil, mechanical, and electrical engineering technology; computer technology; and aerospace maintenance engineering technology. The Associate in Science degree may be earned in telecommunications and energy systems. For more information, call 617-437-2500.

University College

University College, so called because it draws upon the resources of the other colleges of the University, offers part-time day and evening programs in business administration, health professions and sciences, law enforcement, and liberal arts leading to the Associate in Science, Bachelor of Arts, and Bachelor of Science degrees. A number of certificate programs are also available. For more information, call 617-437-2400.

Graduate Schools

Boston-Bouvé College of Human Development Professions

Offers full- and part-time programs leading to the Master of Science degree with specialization in counseling psychology, physical education, physical therapy, recreation management, and speech-language pathology and audiology.

The Master of Education degree may be earned with specialization in counseling, consulting teacher of reading, curriculum and instruction, educational research, human development, rehabilitation, and special education. The Doctor of Education degree may be earned in leadership: administration and supervision, with specialization in counseling, educational administration, or rehabilitation administration. For more information, call 617-437-2708.

College of Arts and Sciences

Offers programs leading to the Master of Arts degree in economics, English, history, journalism, political science, psychology, sociology, and social anthropology. The Master of Science degree is available in biology; chemistry; economic policy and planning; law, policy, and society; mathematics; and physics. The Master of Technical and Professional Writing, the Master of Science in Health Science, the Master of Journalism in News Media Management, and the Master of Public Administration degrees are also offered. In addition, there are programs leading to the Certificate of Advanced Graduate Study in advanced literary study and to the Doctor of Philosophy degree in biology; chemistry; economics; law, policy, and society; mathematics; physics; psychology; and sociology. There are also certificate programs in economics of manpower and development planning and in technical writing. Most programs may be completed through either full- or part-time study. For more information, call 617-437-3980.

College of Business Administration

Offers five programs leading to the Master of Business Administration (M.B.A.) degree. Options include a cooperative education M.B.A. program, a full-time M.B.A. program, and a part-time M.B.A. program. An executive M.B.A. program

tailored to the needs of experienced managers and a high-technology M.B.A. program designed for professionals in the high-technology community are offered on a part-time basis. A non-degree program leading to the Certificate of Advanced Study is also available. For more information, call 617-437-2714.

The Graduate School of Professional Accounting offers a full-time program leading to the Master of Science degree. For more information, call 617-437-3244.

The Center for Management Development offers a variety of nondegree programs and workshops at the graduate level, including the Management Development Program, the Management Workshop 1 and 2, the Management Workshop in High Technology, and the Smaller Business Executive Program. Call 617-437-3272 for more information.

College of Computer Science

Offers full- and part-time programs leading to the Master of Science in Computer Sciences. Programs concentrate on artificial intelligence, communications and networks, data bases, interactive systems design, systems software, and theory. For more information, call 617-437-2462.

College of Criminal Justice

Offers both full- and part-time programs leading to the Master of Science in Criminal Justice. Criminal justice students may concentrate in administration and planning, criminology and research, or security administration, or they may develop their own multidisciplinary concentration under the supervision of a faculty advisor. For more information, call 617-437-3327.

College of Engineering

Offers programs leading to the Master of Science with specification in chemical, civil, industrial, and mechanical engineering; electrical and computer systems engineering; information systems; and transportation. A five-year program leading to both a bachelor's and a master's degree is offered in electrical, industrial, and mechanical engineering and a six-year program leading to both a bachelor's and a master's degree is offered in power systems. Professional Engineer's degrees are offered in electrical, industrial, and mechanical engineering. The Doctor

of Philosophy degree is offered in chemical, civil, electrical, and mechanical engineering and in industrial engineering and information systems. A Doctor of Engineering is offered in chemical engineering. A Women in Engineering and a Women in Information Systems program are also available. For more information, call 617-437-2711.

College of Pharmacy and Allied Health Professions

Offers programs leading to the Master of Science degree in biomedical science, clinical chemistry, hospital pharmacy, medical laboratory science, medicinal chemistry, and pharmacology. The Master of Health Professions is offered with options in general, health policy, physician assistant, and regulatory toxicology. A doctorate degree program is offered in biomedical science with specialization in medical laboratory science, medicinal chemistry, pharmaceutical sciences, pharmacology, or toxicology. A graduate program in clinical pharmacy, leading to the Doctor of Pharmacy is also available. For more information, call 617-437-3211.

School of Law

Offers a full-time day program leading to the Juris Doctor degree. The three-year curriculum includes four quarters of experience in judges' chambers, law offices, or governmental agencies, or with other law practitioners. For more information, call 617-437-2395.

Center for Continuing Education

The Center for Continuing Education was established to connect the University with the educational needs of the community. The Center offers a wide range of workshops, conferences, seminars, forums, and special training programs in such areas as business, building technology, emergency medical training, graphic arts, health, management, nursing, paralegal studies, and test preparation courses for the SAT, GMAT, LSAT, and GRE examinations. For more information, write or call the Northeastern University Center for Continuing Education, 370 Common Street, Dedham, MA 02026, telephone 617-329-8000.

Insurance and Financial Services Institute

The Insurance and Financial Services Institute was established to foster excellence in the insurance and financial services communities in the Boston area. It offers a number of courses in preparation for the chartered life underwriter and chartered property-casualty underwriter designations as well as programs in general insurance, risk management, insurance licensing, and NASD Series 7 and 63. The Institute also offers a number of seminars designed to address timely issues in both the insurance and the financial services professions. For more information, call or write the Northeastern University Insurance and Financial Services Institute, 89 Main Street, Suite 203, Medway, MA 02053, telephone 617-533-5101.

Research

Research, whether performed in the laboratory, in the library, or in the field, is vital to the University's operation. It stimulates all participants and ensures a thriving academic atmosphere. Through research, faculty members and students stay abreast of the most recent developments in their particular fields. Faculty who disseminate this knowledge through publishing, speaking, and teaching help ensure a university education of the first order.

At Northeastern University, research and scholarly endeavors are taken very seriously and are actively encouraged. Each year the faculty receive funding for an ever-increasing number of research projects. Sponsorship comes from a variety of sources. Federal agencies, private industry and foundations, and the University itself all contribute to Northeastern's growing research emphasis.

Although much of this research is carried out by faculty members, their graduate students, and post-doctoral research associates, ample opportunities exist for undergraduate students. Research participation can take place as part of regular academic programs, as specially designed independent studies, or through cooperative

work assignments. Research activities are encouraged and are limited only by the student's own motivation and curiosity.

Northeastern University has numerous distinguished faculty members, many of whom have received prestigious awards, including Sloan Scholarships, Guggenheim Fellowships, and National Institute of Health Research Awards. Faculty members lecture the world over—from just across the Charles River in Cambridge to clear across the Pacific Ocean in Sydney, Australia.

In addition, many faculty serve as United States government consultants and participate on a variety of national and international committees. But because Northeastern considers education its primary mission, students will always find an enthusiastic and accessible faculty to answer questions, solve problems, and stimulate inquiring minds.

Current research spans almost every academic and professional field and is not limited to laboratory investigations or the "hard" sciences. Every department of every college at Northeastern carries out some basic or applied research projects.

Facilities and Resources

In 1910, Northeastern University began construction on the first piece of land acquired at its present Huntington Avenue site. Since those early days, the central Boston campus has grown to occupy over 50 acres of land located close to such cultural landmarks as Symphony Hall, the Museum of Fine Arts, the Isabella Stewart Gardner Museum, Horticultural Hall, and the Boston Public Library. The University is within walking distance of Fenway Park, Copley Place, the Back Bay shopping district, and a number of renowned hospitals, including Brigham and Womens and Harvard teaching hospitals.

In addition to five suburban campuses, a number of branch locations, and several off-campus athletic facilities, Northeastern University maintains a variety of affiliations that provide its students access to facilities and specialized equipment at other institutions and organizations.

The main Boston campus is built around a quadrangle, one side of which faces Huntington Avenue, a major artery dividing the campus. The buildings surrounding the quadrangle characterize the urban design of the campus and the innovative design of the new buildings that have been added in recent years has maintained an architectural theme that is both attractive and functional.

The campus itself has been planned to provide easy access to classrooms, laboratories, and administrative offices through a series of connected walkways and a network of underground corridors providing routes that are especially convenient during periods of inclement weather. As the University continues to expand, parking and recreational areas are integrated into the campus along with new academic facilities.

Suburban Facilities

Northeastern University's five suburban campuses provide administrative and classroom facilities for the University's graduate, adult, and continuing education programs, as well as the environment necessary for specific programs of study that could not be accommodated in an urban area.

The Warren Center provides a practical laboratory in outdoor education and conservation and in camping administration, programming, and counseling. It also offers a summer campsite for various community and University groups and activities and is available as a conference and workshop site.

The Marine Science and Maritime Studies Center is located in Nahant, on Massachusetts Bay, 20 miles northeast of Boston and serves as a site for national, international, and University research.

Henderson House¹ is Northeastern University's conference center. Located 12 miles from Boston in suburban Weston, Henderson House hosts a variety of round-the-clock activities including residential seminars, workshops, short courses, and weekend meetings.

The Suburban Campus of Northeastern University is located in Burlington, near the junction of Routes 128 and 3. Full-time courses for freshmen and alternative freshmen are offered here as well as part-time, undergraduate courses in a variety of subject areas and part-time, graduate courses in engineering and business administration. The Burlington campus also offers special programs for adults and noncredit continuing education courses.

The Suburban Campus is situated close at hand to another Northeastern University facility, the Botanical Research Station in Woburn, which contains a small arboretum and a spacious greenhouse for propagation and research.

One of the most recent campus acquisitions is the 20-acre Dedham Campus, just north of Route 128. This facility houses the Center for Continuing Education and provides space for the College of Business Administration's High Technology M.B.A. program.

University Libraries

The University Libraries include seven units. On the Boston campus, there is the main facility, Dodge, and three libraries that house graduate-level collections in chemical and biomedical sciences, mathematics and psychology, and physics and electrical engineering. There are also libraries located on the Burlington and Dedham campuses and at the Marine Science and Maritime Studies Center in Nahant.

The total holdings of the University libraries include the equivalent of more than one million volumes in print and in microform; 5,000 periodical titles; 300,000 government documents; and 24,000 items in audio-visual and computer software formats.

In the main library, the Learning Resources Center provides computer-assisted instruction, microcomputer facilities, and language and music listening laboratories. Also housed in the Center is an extensive set of self-paced media materials in various interactive formats, including audio-tapes, videotapes, and computer-assisted lessons and exercises.

The University's membership in the Boston Library Consortium generally allows Northeastern University students on-site use of consortium libraries at the following institutions: Boston College, Boston Public Library, Boston University, Brandeis University, Massachusetts Institute of Technology, State Library of Massachusetts, Tufts University, the University of Massachusetts (Amherst, Boston, and Worcester campuses), and Wellesley College. Borrowing privileges may also be granted to graduate students who hold a consortium card.

Academic Computer Services

Academic Computer Services supports research activities of faculty, research personnel, and graduate students, as well as teaching and learning activities at both the graduate and undergraduate levels. The computational capability of this facility includes 115 IBM personal computers linked in local-area networks at the Boston, Burlington, and Dedham campuses. A wide-area network also provides students and faculty with time-sharing access to five large computers through video and hard-copy terminals arranged in clusters at all three campuses. The wide-area network connects three Digital Equipment Cor-

poration VAX-11/780 systems plus an additional VAX 11/785 and a Data General MV/8000. This network also provides access through a number of dial-in telephone lines, primarily for faculty use, to all five computers. A variety of graphics and output devices are also available. Effective use of all facilities is promoted by the availability of programming assistance at all three campuses.

Electronic spreadsheet and word-processing packages are available, as well as numerous software libraries for numerical, statistical, and financial applications. The primary languages supported are FORTRAN, COBOL, BASIC, PASCAL, LISP, PL/I, and Assembler.

Department of Career Development and Placement

The Department of Career Development and Placement offers a wide range of counseling and placement assistance to all seniors, graduate students, and alumni of Northeastern University seeking employment, as well as to students interested in participating in nonpaid, part-time internships in private or public nonprofit agencies for which they may receive academic credit.

Through this department, representatives of hundreds of employers are scheduled to visit the campus each year to interview seniors and graduate students for full-time employment after graduation. A job bank of currently available positions is maintained for alumni who are seeking new opportunities. Credential service is provided for students and alumni seeking positions in the field of education and for applicants for graduate and professional schools. Regularly scheduled seminars are conducted for seniors, graduate students, and alumni on career development, job-finding techniques, résumé preparation, and effective interviewing. Individual career counseling is available for seniors, graduate students, and alumni of all University programs.

Sport, Dance, and Exercise Facilities

Through its Cabot Center for Physical Education Dockser Hall, and Barletta Natatorium, Northeastern University offers a wide variety of specialized facilities, including basketball courts, dance studio, indoor athletic field and running track, gymnastics room, combatives room, weight-training rooms, swimming pool, crew

practice tank, racquetball courts, and motor performance and exercise physiology laboratories. The Matthews Arena, with seating for more than 5,000 fans, provides home ice to the University's varsity and subvarsity hockey teams and, when the portable playing floor is down on the ice, home court to the University's basketball teams.

For organized athletics requiring facilities not available on the main campus, Northeastern maintains several off-campus locations, including the Northeastern Boat House, which is located on Memorial Drive in Cambridge and provides a home for the University's crew teams. The Edward S. Parsons Field, on Kent Street in Brookline, is the playing ground for the football, baseball, women's lacrosse and women's field hockey teams, and some intramurals.

Dedham Track

A recently completed outdoor track and field facility in Dedham has an eight-lane, Action Trak 200 running surface and an expansive area for concurrent jumping and field events. This new facility is ready to host dual and championship meet competition and is a permanent site for Northeastern University track athletes.

Ell Student Center

The Carl S. Ell Student Center provides facilities for student recreation and extracurricular activities. The Alumni Auditorium, with a seating capacity of 1,300, is part of the Center. Also included are special drama facilities, a ballroom, main lounge, fine arts exhibition area, student offices, conference rooms, a cafeteria with seating for more than 1,000, and a bookstore.

Lane Health Center

A comprehensive program of medical care is provided to all full-time graduate and undergraduate students. The University maintains a health services clinic, which is open for emergencies at all times and is equipped to deal promptly with any medical condition that may arise. All entering full-time students must submit a pre-entrance physical examination form provided by the Lane Health Center prior to registration. Failure to fulfill this requirement can delay registration and result in a penalty fee and an additional fee for a physical examination.

Counseling and Testing Center

Counseling and testing to aid a student or prospective student with career, educational, or personal concerns are available days and certain weekday evenings until 8:30 p.m. Information and appointments can be obtained by calling 617-437-2142 or by visiting the Counseling and Testing Center.

Office of Services for the Handicapped

Any student who has a disability-related special need, no matter how small or individual, can receive ready support services from the Office of Services for the Handicapped (OSH). Frequently, students are uncertain about how they may be aided by this office, and in these situations a discussion of possible alternatives can be quite helpful. OSH provides a wide range of support services to eliminate the competitive disadvantages that a disability may create. Services are individually tailored to meet the needs of each student.

The types of assistance available from the Office include orientation, registration and preregistration, an information clearinghouse, counseling, housing, services for the hearing-impaired, the wheelchair user/mobility-impaired, and learning-disabled student.

The Office is also the gathering place for the Disabled Student Organization of Northeastern University, which works cooperatively with OSH to plan programs and improve accessibility of services for the handicapped persons at Northeastern.

Office of Multicultural Student Affairs

The Office of Multicultural Student Affairs was created for the purpose of meeting the needs of Third World students. The Office oversees the coordination and implementation of support services provided by the English Language Center and the International Student Office. Moreover, the Office provides advocacy representation at the upper level of University administration, thereby insuring that Third World student needs are being comprehensively addressed.

Network Northeastern University

Network Northeastern University (NNU) represents the University's entry into the age of education by telecommunications. The Network uses the microwave-based Instructional Television Fixed Service (ITFS) system whereby educational services are delivered directly to company sites and other remote locations within a 30-mile radius of Northeastern's main Boston campus. With this service, live classroom instruction is telecast in color to remote sites, where it is viewed in reception rooms equipped with television monitors and a telephone-based talkback system. During presentations, off-campus students are able to participate in the instruction as fully as the students on campus. A courier service collects and delivers homework assignments and serves as the off-campus student's link to the bookstore, registrar, and other campus services.

Network Northeastern currently offers courses in graduate engineering, undergraduate engineering technology, and selected arts and sciences topics. This instruction is telecast daily between 8 a.m. and 10 p.m. on four channels to off-campus students at 15 company sites and two suburban campuses.

Faculty

Samy A. Abdel-Baky, Ph.D.
Chemistry
Northeastern University

Herbert Abrams, M.L.*
Law Enforcement
Superior Court of Massachusetts

Michael J. Abruzzese, M.B.A.
Information Systems
U. Mass. Medical Center

Deborah A. Adair, M.S.
Health Record Administration

Henry Adleman, B.S.*
Information Systems
Digital Equipment Corp.

John M. Aflague, R.N., B.S.
Health Science
Massachusetts General Hospital

Paul D. Ahern, M.B.A.
Accounting
Carter Company

Thomas J. Ahern, Jr., J.D.*
Business Law
Silver and Ahern

H. David Ahlberg, Ph.D.*
Biology
American International College

Joseph Aieta III, M.A.*
History
Lasell Junior College

Fariba Aliloo, M.S.
Information Systems
Northeastern University

Kariman I. Allam, B.S.
Chemistry
Northeastern University

Mary T. Allard, B.S.
Medical Laboratory Science
Children's Hospital

Israel Aluf, Ph.D.*
Modern Language
Northeastern University

Harold E. Ameal, B.S.
Law Enforcement
Massachusetts State Police

Richard J. Amorosi, B.F.A.
English
Cardinal Spellman High School

Craig A. Andersen, B.S.
American Sign Language
Northeastern University

Paul G. Anderson, B.S.*
Art
Artist

R. Wayne Anderson, Ph.D.*
History
Northeastern University

Linda A. Andros, J.D.
Real Estate
Attorney General's Office

Joseph F. Angeramo, Esq., LL.B.*
Finance

Robert B. Angus, M.S.
Management Sciences
ANAB Associates

Stanley S. Antoniotti, M.A.*
Economics
Bridgewater State College

Robert F. Anzenberger, B.S.
Human Resources Management

Robert J. Anzenberger, M.A.
Human Resources Management
Zayre Corp.

Joan L. Arches, M.S.*
Sociology/Anthropology
Regis College

Joseph T. Arcidiacono, B.S.
Information Systems
Digital Equipment Corp.

Edward A. Arees, Ph.D.
Psychology
Northeastern University

Stephen F. Armstrong, Sr., M.B.A.*
Purchasing
Varian Associates

Jane Aroian, M.S.
Nursing
Northeastern University

Steven A. Aronson, B.S.
Information Systems
The Gillette Company

Pamela J. Aselton, M.S.
Health Science
Boston University

Meredith O. Atkinson, M.A.
English

David J. P. Aurelio, HS.D.
Radiologic Technology
St. Luke's Hospital

Saul H. Auslander, M.B.A.
Finance
Bridgewater State College

Alice D. Avakian, M.S.
Biology
Emerson College

Jason M. Avergun, M.B.A.*
Marketing
York International Corp.

Warren F. Averill, M.S.*
Chemistry
Milton School Department

Nawal Awad, M.A.
Alt. Freshman/Mathematics

Paula L. Aymer, M.A.
Sociology/Anthropology
Northeastern University

Virginia Ayoob, M.A.
Music

David R. Ayotte, M.Ph.
Medical Laboratory Science
Fenway Community Health Ctr.

David L. Bachrach, Ed.D.*
Psychology
Boston VA Medical Center

Philip N. Backstrom, Ph.D.
History
Northeastern University

Swaminathan Badrinath, D.B.A.
Finance
Northeastern University

Anthony J. Bajdek, M.A.*
History
Northeastern University

Edward F. Baker, M.S.
Mathematics
Westwood High School

Errol H. Baker, Ph.D.*
Psychology
Boston VA Medical Center

Ramaiya Balachandra, D.B.A.
Management
Northeastern University

James C. Baldwin, B.F.A.
Art

Dorothy J. Bales, M.A.
Music
N.E. Conservatory of Music

Peter S. Baletsa, M.S.
Biology
Lynn Public School System

George B. Ballester, M.A.
Information Systems
Pegasystems, Inc.

Kenneth W. Ballou, M.A.
Management
Waters Business Systems, Inc.

David M. Banash, J.D.
Business Law
Self-Employed

Louis E. Banderet, Ph.D.*
Psychology
U.S. Army Research Institute

John J. Baranofsky, M.S.*
Management
Raytheon Company

Antonio Barbagallo, M.A.
Modern Language
Salem High School

Didier Bardon, B.S.
Art
Self-Employed

David R. Barkmeier, Ph.D.
Psychology
Northeastern University

Raymond S. Barnstone, M.B.A.*
Finance
Codex Corp.

Barbara R. Barry, Ph.D.
Music
N.E. Conservatory of Music

Scott P. Barts, Ph.D.
Psychology
Lighthouse School

Bernard N. Basch, M.B.A.*
Information Systems
F. W. Faxon Co., Inc.

Norman D. Bates, J.D.*
Law Enforcement
Northeastern University

William W. Bauser, M.A.
Philosophy/Religion

Anthony Beadle, B.A.
Music

*Denotes senior lecturer as of October 1985.

Marcus A. Bearse, Jr., M.A.

Psychology
Northeastern University

Alan J. Beauchamp, M.B.A.

Accounting
Wang Laboratories, Inc.

Paul Beaulieu, Jr., A.S.

Radiologic Technology
Massachusetts General Hospital

Gail M. Becker, A.S.

Health Record Administration
Boston Univ. Medical Center

Nancy V. Becker, M.Ed.

American Sign Language
Northeastern University

Judith E. Bedford, M.A.

Music

Stanley A. Beecoff, M.B.A.*

Management
General Connector Corp.

Roger Beer, M.S.

Information Systems
Digital Equipment Corp.

Richard E. Belanger, B.S.*

Management
Honeywell, Inc.

Cynthia H. Belhumeur, B.S.

Therapeutic Recreation
Athlete's Corner

Russell Beliveau, M.B.A.

Information Systems
Self-Employed

Diane M. Bellavance, C.A.G.S.

Marketing
D. Bellavance, Agency

Barbara A. Belmont, B.A.

Psychology
Northeastern University

Ralph C. Belmonte, Ed.D.*

Speech Communication
Revere Public Schools

Barbara A. Beltrand, M.A.

Accounting
Fenway Community Health Center

Patricia Bench, M.Ed.

Alt. Freshman/Mathematics

David A. Bender, B.S.

Information Systems
General Data Corp.

Richard F. Benedetto, M.A.

Management
Merrimack College

Claire T. Bennett, M.S.

Health Management
Jordan Hospital

Paula Bennett, Ph.D.*

English

Maria F. Benotti, M.A.

Music
N.E. Conservatory Extension

Paul J. Bento, M.S.

Earth Science
J. P. Keefe Technical School

Marcia Berhman, M.Ed.

Alt. Freshman/Language Skills

Ann K. Berliner, B.A.

Alt. Freshman/Language Skills
Northeastern University

Benjamin A. Berman, B.A.

Transportation
Benjamin A. Berman Assoc.

Mark S. Berman, M.Ed.

Health Management

Samuel J. Bernstein, Ph.D.*

English
Northeastern University

Henry M. J. Biagi, M.A.

Hotel & Restaurant Management
City of Somerville

Maryann G. Billington, M.B.A.

Marketing
Northeastern University

Peter J. Billington, D.B.A.

Management
Northeastern University

Bonnie Bishop, M.Ed.

Alt. Freshman/English

Samuel S. Bishop, M.F.A.*

Art
Northeastern University

Susan Bjorner, M.L.S.

Library Science
Massachusetts Institute of Technology

Al Black, M.B.A.

Accounting

Charles K. Black, M.B.A.

Accounting
Lewcott Chemical & Plastics Corp.

Carl Blackman, B.S.*

Accounting
Carl Blackman & Co.

Eugene J. Blackman, M.A.*

Drama
Northeastern University

Charmarie J. Blaisdell, Ph.D.*

History
Northeastern University

Robert J. Blanch, Ph.D.*

English
Northeastern University

Dennis Blanchard, M.B.A.

Information Systems
Hills Department Stores

Thomas W. Blaney, M.S.

Information Systems
Reading High School

Theodore Blank, Ed.D.*

Health Science
Mass. Dept. of Public Health

Carolyn L. Blicht, M.A.*

Sociology/Anthropology
Northeastern University

Stanley I. Bogdan, B.S.*

Law Enforcement
Boston Police Department

Habib Borjian, M.S.

Mathematics

Vincent C. Borman, M.B.A.*

Transportation
Raytheon Company

Lorraine M. Bossi, M.S.

Nursing
Children's Hospital

Charles R. Botticelli, Ph.D.

Biology
GTE Laboratories

Guy E. Bottiglio, M.S.

Information Systems
Digital Equipment Corp.

Mark S. Bourbeau, J.D.

Real Estate
Commonwealth of Massachusetts

Theodore R. Bousquet, B.S.*

Information Systems
Honeywell, Inc.

John F. Bowes, Jr., M.B.A.*

Information Systems

George S. Bowling, Ed.D.*

Human Resources Management
Dept. of Health and Human Services

Patricia E. Boyce, Ph.D.

Sociology/Anthropology
Northeastern University

Richard W. Boyden, B.S.

Information Systems
Chess King

Catherine M. Boyle, M.Ph.

Health Management
Massachusetts General Hospital

Alan Bradshaw, M.S.*

Mathematics
Chelmsford School Department

Patrick J. Brady, B.S.

Law Enforcement
Boston Police Department

Thomas P. Brady, Jr., M.B.A.

Accounting
Rowe & Brady

Russell S. Braese, B.S.

Real Estate
NYNEX Properties Corp.

Eugene G. Branca, M.S.*

Mathematics

Barbara R. Brathwaite, M.Ed.

Human Resources Management
Automatic Data Processing

Joseph A. Brazauskas, M.S.

Earth Science
J. P. Keefe Technical School

Raymond W. Brennan, M.S.*

Law Enforcement
Mass. Correctional Institution

David L. Brett, M.S.

Information Systems
Reading Memorial High School

Caroline B. Bridgeman-Rees, M.A.

History
International Institute

Edward J. Brigman, M.A.

Economics

Barbara K. Britt, B.A.

Human Resources Management
Britt Associates, Inc.

John E. Brodeur, M.P.A.

Journalism

David L. Brody, B.S.*

Law Enforcement
Boston Police Department

George M. Brooker, M.B.A.*

Economics
Dean Junior College

Miriam G. Brooks, M.A.

Art
Waterline Publications

*Denotes senior lecturer as of October 1985.

- Ernest D. Brown, Ph.D.**
Music
Northeastern University
- Fern M. Brown, M.Ed.**
English
- Gerald R. Brown, M.S.***
Law Enforcement
Plymouth Superior Court
- Ann S. Broyer, B.A.**
Women's Career Program
N. S. Stone, Inc.
- Gordon L. Brumm, Ph.D.***
Philosophy/Religion
- Richard P. Bucci, M.B.A.**
Accounting
Self-Employed
- Eugene E. Bucco, M.B.A.**
Accounting
Unico Service Company
- Harold G. Buchbinder, M.S.M.E.**
Journalism
- Leo F. Buckley, Jr., M.B.A.**
Accounting
Wang Laboratories
- Michael L. Buckley, M.B.A.**
Accounting
Beth Israel Hospital
- Anthony A. Buglio, M.S.***
Speech Communication
- Kenneth R. Buja, B.S.**
Transportation
Associated Air Freight
- Richard H. Bullock, Ph.D.**
English
Northeastern University
- Bruce Buntin, B.S.***
Human Resources Management
Human Resource Services
- Edward L. Burke, J.D.***
Transportation
Commonwealth of Massachusetts
- Robert K. Burke, M.B.A.**
Information Systems
Commercial Union Ins. Co.
- Alfred C. Burmeister, M.B.A.***
Information Systems
Digital Equipment Corp.
- Gerald L. Bursey, Ph.D.**
Political Science
- Charles F. Burt, M.B.A.***
Accounting
H. J. Stabile & Son, Inc.
- Rev. Richard W. Burton, B.S.***
Earth Science
- Karen Buzzard, Ph.D.**
Speech Communication
- Ronald J. Byrnes, M.B.A.***
Management Sciences
CIBA Corning Diagnostics
- Robert T. Cadigan, Ph.D.**
Health Management
Dept. of Public Health
- Susan M. Caldarella, M.A.**
Psychology
Northeastern University
- Linda B. Caliga, M.B.A.**
Women's Career Program
Cardinal Cushing Hospital
- William A. Calore, B.S.**
Hotel & Restaurant Management
Rindge Latin School
- Charles Calusdian, M.B.A.***
Industrial Management
Raytheon Company
- David S. Calverley, Ph.D.***
Psychology
- Ballard C. Campbell, Ph.D.**
History
Northeastern University
- Dana B. Campbell, M.B.A.**
Accounting
Digital Equipment Corp.
- Susan C. Campbell, M.Ed.**
English
Mosaic Software
- James A. Canino, M.A.**
Sociology/Anthropology
N. Essex Community College
- Mira Cantor, M.F.A.**
Art
Northeastern University
- Edgar D. Canty, M.S.***
Mathematics
Bridgewater State College
- Enrico C. Cappucci, B.S.**
Law Enforcement
Shirley Police Department
- Donald A. Carbone, M.Ed.**
Accounting
Boston Regional Ed. Center
- Anthony M. Carilli, A.B.**
Economics
Self-Employed
- Olga F. Carito, M.S.**
Mathematics
Watertown High School
- Rebecca E. Carosso, M.Ed.**
Speech Communication
Chelmsford High School
- Charles J. Carr, M.B.A.***
Accounting
The New Can Co., Inc.
- Janet H. Carr, M.A.**
English
Northeastern University
- John M. Carr, B.S.**
Earth Science
Museum of Science
- William F. Carr, LL.B.**
Business Law
Puopolo & Carr, P.C.
- Patrick R. Carroll, Esq., J.D.***
Health Management
Massachusetts Hospital Association
- William S. Carroll, Esq., J.D.**
Health Management
Brigham & Womens Hospital
- Norman J. Cartmill, M.B.A.***
Management
Carnor Management Systems
- Arthur F. Casavant, M.B.A.**
Purchasing
Raytheon Company
- Patricia M. Casey**
Accounting
PMC Consulting Services
- Robert W. Casey, M.Ed.**
Speech Communication
Burlington High School
- Margaret P. Casper, Ph.D.**
Mathematics
King Philip Regional Schools
- Christopher L. Cass, M.A.**
Sociology/Anthropology
Badger Engineers, Inc.
- Sharron G. Cassavant, Ph.D.**
English
Simmons College
- Christopher J. Cassidy, M.S.***
Information Systems
Northeastern University
- Richard Castle-Walsh, M.B.A.**
Women's Career Program
Bethlehem Steel Corp.
- Miriam Castro-Feliciano, M.S.**
Biology
- Karen A. Chagnon**
Health Science
Newton-Wellesley Hospital
- George Y. Chao, M.D.**
Health Science
- Michael D. Chefetz**
Business Law
Johnson & Polubinski
- Kenneth Chernack, M.B.A.**
Information Systems
Digital Equipment Corp.
- Joseph W. Chevarley, Jr., D.B.A.**
Management
Northeastern University
- Catherine Chiang, M.A.**
Economics
Northeastern University
- John T. Chirban, Ph.D.**
Psychology
Harvard Univ. & Hellenic Coll.
- John A. Chmielinski, M.Ed.***
Law Enforcement
Mass. Dept. of Corrections
- Catherine A. Chokola, M.F.A.**
Art
- John A. Christoforo, Jr., M.B.A.**
Health Management
Lawrence Memorial Hospital
- Curtis C. Chui, M.D.**
Health Science
Care One Doctors
- Warren W. Church, M.S.**
Radiologic Technology
Boston Regional Office
- Anthony Cicerone, M.A.**
Economics
- Joseph D. Clancy, J.D.**
Law Enforcement
District Court of Natick
- David E. Clapp, M.Ed.**
Biology
Massachusetts Audubon Society
- Geoffrey Clarkson, D.B.A.**
Management
Northeastern University
- Fred W. Clarridge, Jr., M.S.**
Earth Science
- Howard S. Clayman, B.A.**
Information Systems
Dynamics Research Corp.

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Richard W. Clayton, Jr., M.Ed.

English
Dover Regional High School

Paul F. Cleary, M.A.

Economics
Occupational Analysis

Carol Ann Clem, M.B.A.

Marketing

Paul Clemente, Jr., M.S.

Accounting
Boston University

Patricia A. Cloonan, M.S.

Nursing
Northeastern University

William M. Cloran, J.D.*

Law Enforcement
DiCara Selig & Holt

Yvonne M. Cobbige, M.A.

Music
Self-Employed

Sharlene V. Cochrane, Ph.D.

History
Boston College

Gerald F. Cody, B.A.

Marketing
Dean Witter Reynolds, Inc.

Mary C. Cody, B.S.

American Sign Language
Northeastern University

Cathy Cogen, M.Ed.

American Sign Language
Northeastern University

William G. Coggan, Ph.D.*

Human Resources Management
Massasoit Community College

Edward S. Cohen, M.A.*

Information Systems
Hampden Automotive Sales

Richard A. Cohen, B.S.

Real Estate
City of Boston

Robert F. Cohen, B.S.

Accounting
Self-Employed

Robert L. Cohen, M.S.

Information Systems

Jaimee W. Colbert, M.A.

English

Stephen F. Coleman, M.S.

Political Science
Northeastern University

Annalee Collins, R.R.A., B.S.*

Health Record Administration
Northeastern University

Eleanor Collins, M.S.

Alt. Freshman/Mathematics

Richard J. Comings, M.A.*

History
Northeastern University

John J. Condon, Jr., M.B.A.

Accounting
Avco Systems Division

Paul C. Condon, M.B.A.

Marketing
Xyplex Inc.

Elizabeth M. Congdon, M.A.*

History
Peabody School System

Spencer F. Conley, B.S.

Journalism
Spencer F. Conley Associates

Leonard M. Conlin, Sr., M.Ed.*

Mathematics
Framingham North High School

John F. Connelly, Ph.D.

Information Systems
Boston Edison Company

John J. Connelly, B.S.

Law Enforcement
Mass. Trial Court, Norfolk

William G. Connelly, B.S.

Law Enforcement

Thomas F. Connerty, M.B.A.

Information Systems
Prime Computer, Inc.

James J. Connolly, M.B.A.

Accounting
Natick Public Schools

Joseph N. Connors, M.P.A.*

Political Science
Liberty Security

Linda W. Conrad, J.D.

Journalism
Moquin & Daley

Louis E. Conrad, M.S.

Journalism
Northeastern University

Peter Contis, M.B.A.

Accounting
Northeastern University

Lindsay Cook, M.S.

Accounting
Liberty Financial Services

Ellen M. Cooney, M.A.

English
Self-Employed

Ronald M. Copeland, D.B.A.

Accounting
Northeastern University

John S. Corcoran, M.S.

Technical Communications

Norma Corey, E.D.

Alt. Freshman/Language Skills

Dyer Cornell, M.B.A.*

Finance
First National Bank

Richard S. Corrente, M.B.A.*

Management
Raytheon Company

Edward V. Cosgrove, Ph.D.*

Biology
Commonwealth of Massachusetts

William H. Costello, Ph.D.

Psychology
Self-Employed

James W. Cottom, M.A.

History
Massasoit Community College

Jonathan C. Covell, B.A.

Information Systems
Hills Department Stores

Thomas F. Coveney, M.B.A.*

Information Systems
Stone & Webster Eng. Corp.

James M. Cox, M.Ed.*

Law Enforcement
Boston Police Department

Wallace Coyle, Ph.D.

English
University of Massachusetts

Carol L. Crane, M.S.

Women's Career Program
Mass. Higher Ed. Asst. Corp.

Bryan D. Craven, B.S.

Information Systems
General Electronics Company

Kathleen Crimmins, M.A.

Technical Communications
Codex Corp.

Salvatore A. Crisafulli, M.B.A.*

Information Systems
Fleet Financial Group

Robert D. Crofts, M.A.*

Economics
Salem State College

John F. Cronin, Jr., M.B.A.*

Accounting
Raytheon Company

Joseph V. Cronin, Jr., J.D.*

Business Law
Massachusetts Trial Court

Joseph W. Cronin, B.S.*

Management Sciences
Sanders Associates

Hugh J. Crossland, D.B.A.

Accounting
Weston Financial Group

Brian C. Crowley, M.B.A.*

Accounting
The Flatley Company

Dennis M. Crowley, Jr., J.D.*

Law Enforcement
First Security Services

Mark D. Crowley, M.B.A.

Accounting
Autex Systems, Inc.

Patricia L. Culbert, M.F.A.

Drama
Brimmer and May School

John F. Cullen, J.D.*

Law Enforcement
Attorney at Law

Joseph I. Cullen, M.Ed.

Law Enforcement
Commonwealth of Massachusetts

David M. Culver, Ph.D.*

History
Bridgewater State College

Edmund Cuoco, B.A.

Technical Communications
Lexicon, Inc.

Helen M. Curley, M.A.*

Law Enforcement

Kathleen F. Curley, D.B.A.

Information Systems
Northeastern University

Joan Curtice, M.A.

Human Resources Management
Lionex Corp.

Robert S. Curtin, Ed.D.

History
Northeastern University

John J. Curtis, M.A.

Music
Emerson College

*Denotes senior lecturer as of October 1985.

- Roseann Cutroni, M.S.**
Health Science
St. Elizabeth's Hospital
- Patricia Dacey, M.Ed.**
Women's Career Program
YWCA
- Maria N. DaCosta, M.S.**
Economics
Northeastern University
- Dennis P. Dalton, M.F.A.**
Art
- Joanne M. Dalton, M.S.**
Nursing
Northeastern University
- Albert C. D'Amato, M.Ed.***
English
Northeastern University
- Miriam F. D'Amato, M.A.***
English
Professional Editorial Services
- Ralph A. D'Amelio, B.S.**
Information Systems
Wang Laboratories
- Maria M. Damiano, HS.D.**
Radiologic Technology
Brigham & Womens Hospital
- Patricia J. Dapolito, M.S.**
Health Science
Commonwealth of Massachusetts
- Arnold E. Daum, B.S.***
Marketing
Arnold E. Daum Co.
- Gerald L. Davis, Ph.D.**
Medical Laboratory Science
Northeastern University
- Richard J. Davis, M.A.***
Law Enforcement
Belmont School Department
- Robert E. Davis, M.B.A.**
Accounting
R.E. Davis and Assoc.
- Willie J. Davis, J.D.***
Law Enforcement
Attorney at Law
- James D. Dawson, Ph.D.**
Alt. Freshman/History
- Deborah D. Day-Oliver, B.S.**
Health Record Administration
Medical Records Service
- Lance M. Dean, M.A.**
Alt. Freshman/English
- Peter U. Decenzo, B.S.**
Mathematics
Ashland High School
- Robert P. Defosse, B.A.**
Purchasing
Digital Equipment Corp.
- Joyce Delorey, M.A.**
Alt. Freshman/Mathematics
Northeastern University
- Dante J. DeMichaelis, J.D.***
Law Enforcement
Attorney at Law
- Robert J. Dennehy, M.B.A.**
Accounting
Robert J. Dennehy, C.P.A.
- Yabel T. Denunzio, Ed.D.***
Law Enforcement
- Arthur J. DePietro, M.S.***
Law Enforcement
Juvenile Court
- Paul J. Derby, M.B.A.***
Information Systems
Honeywell, Inc.
- Joseph B. DeRoche, M.F.A.***
English
Northeastern University
- Stephen R. Derosier, M.B.A.**
Management
Northeastern University
- Harry G. DeSalvatore, M.S.**
Therapeutic Recreation
N.E. Memorial Hospital
- Ernest P. Desimone, J.D.**
Real Estate
McNamara & Desimone
- Debra Desmarais, A.S.**
Radiologic Technology
- Richard K. Deveney, M.Ed.**
Mathematics
Jamaica Plain High School
- Richard P. Devine, Ph.D.**
Sociology/Anthropology
Insight
- James D. Devlin, B.S.**
Marketing
Network Research Corp.
- Robert De Vries, M.A.**
Music
Self-Employed
- Emily Dexter, M.A.**
American Sign Language
Northeastern University
- Brian S. Dextradeur, B.S.***
Management Sciences
Polaroid Corp.
- Norma M. Diandrea, B.A.**
Radiologic Technology
- Arthur F. Diette, Jr., B.S.**
Law Enforcement
Lowell Police Department
- Jeffery E. di Iuglio, M.A.**
English
Curry College
- Howard T. Dimmick, M.Ed.***
Earth Science
Town of Stoneham
- Ernest S. Dinisco, J.D.**
Law Enforcement
U.S. Dept. of Justice
- Francis J. di Sabatino, M.A.**
Chemistry
Quincy High School
- Rosemarie M. Dittmer, M.A.***
English
- James E. Doan, Ph.D.**
English
Chamberlayne Junior College
- Edward Doherty, B.S.***
Law Enforcement
Boston Police Department
- Robert A. Dolan, M.Ed.***
Law Enforcement
Research Publishing Co., Inc.
- Mark Domaszewicz, M.S.E.E.***
Mathematics
Raytheon Company
- Edward M. Donie, M.S.**
Information Systems
Data General Corp.
- John A. Donovan, M.A.**
Law Enforcement
Newton Police Department
- Timothy R. Donovan, Ph.D.***
English
Northeastern University
- Edward M. Dormady, B.A.**
Information Systems
Hills Department Stores
- James W. Dottin, Jr., M.B.A.**
Information Systems
Prime Computer, Inc.
- Nadine V. Dowling, M.B.A.**
Human Resources Management
Emerson College
- Nancy L. Dowling, M.Ed.**
Alt. Freshman/Language Skills
Northeastern University
- Rose A. Doyon, M.A.***
English
Lowell Sun Times
- Joan F. Drexelius, Ph.D.**
Speech Communication
Northeastern University
- Claire Driscoll, M.A.**
Alt. Freshman/Mathematics
- Walter T. Driscoll, Jr., M.P.A.***
Law Enforcement
Scituate Police Department
- David C. Dronsick, M.A.***
Earth Science
Commonwealth of Massachusetts
- Neil F. Duane, M.S.**
Technical Communications
Boston Documentation Design
- Edward L. Dube, M.B.A.***
Management
ELD Associates
- Catherine Dube-Fortin, B.S.**
Technical Communications
Self-Employed
- James Ducey, M.B.A.**
Accounting
Grossman's, Inc.
- Terrance J. Dugan, M.B.A.**
Finance
Investors Bank and Trust Co.
- Daniel T. Dunn, Jr., D.B.A.**
Marketing
Northeastern University
- Laura W. Dunn, M.A.**
English
- Edward A. Duprez, Jr., M.B.A.**
Management
Emmanuel College
- Douglas F. Durant, M.F.A.**
Music
Northeastern University
- Stephen Durkin, Esq., J.D.**
Business Law
Law Offices of Robert Karns
- Paul J. Duval, M.B.A.**
Information Systems
Commonwealth of Massachusetts
- Barbara Dvorchak, M.S.**
Mathematics
Northeastern University

*Denotes senior lecturer as of October 1985.

William C. Dwyer, M.B.A.

Management
Sherwood Lumber Corp.

Richard T. Dyro, Ed.D.
English

Carl W. Eastman, M.A.*
Speech Communication
Northeastern University

William T. Edgett, M.A.*
Human Resources Management
Northeastern University

Maureen L. Edison, M.A.*
English
Self-Employed

John C. Edmunds, D.B.A.
Finance

Northeastern University

Gary A. Edwards, M.B.A.
Accounting
U.S. Dept. of Labor

Michael A. Edwards, Ph.D.
Biology
EKS Center for Mental Retardation

Richard K. Edwards, M.A.
Sociology/Anthropology
Northeastern University

Andrew E. Efstathiou, B.A.
Information Systems
Commonwealth of Massachusetts

Kathryn A. Efstathiou, B.A.
Information Systems

Judith R. Ehlen, M.A.
English

David M. Ehrmann, B.S.
Speech Communication
John Hancock Insurance Co.

James H. Elgin, M.B.A.*
Information Systems
Digital Equipment Corp.

Mohamed El-Sayed, Ph.D.
Chemistry
Northeastern University

Hoda A. El Wakil, B.S.
Chemistry
Northeastern University

Susan J. Engelman, A.S.
Radiologic Technology
University Hospital

John H. Englander, M.B.A.
Purchasing
Hewlett-Packard Corp.

Louis J. Ennis, M.B.A.*
Human Resources Management
Brandeis University

Virginia Eskin, M.A.
Music
Northeastern University

Herbert J. Eskot, Ph.D.*
Economics
Northeastern University

Hassanali Espahbodi, D.B.A.
Management
Northeastern University

Ugo E. Evangelista, M.S.
Mathematics
Revere High School

Richard P. Evans, B.A.
Human Resources Management
Management Collaborative

Anne C. Ewers, M.A.
Music
Self-Employed

Benedetto Fabrizio, Ph.D.*
Modern Language
Northeastern University

Robert M. Fahey, M.Ed.*
Information Systems
Nixdorf Computer Corp.

Michael V. Fair, M.S.W.
Law Enforcement
Mass. Dept. of Correction

Eugene F. Fallon, M.B.A.*
Finance
GenRad, Inc.

Edward J. Falvey, M.B.A.*
Management
Keystone-Massachusetts Group

Ghodratallah Farahani, M.A.
Political Science
Boston University

Daniel M. Fasulo, M.P.A.*
Law Enforcement
Haverhill Police Department

Joseph R. Favaloro, M.B.A.
Finance
Bank of Boston

Irwin Feigelman, B.S.*
Accounting
U.S. Government

David Feinman, M.B.A.
Management Sciences
Independent Consultant

Trudi R. Feinstein, Ph.D.
Psychology
Simmons College

Eileen Feldman, M.A.
English
Self-Employed

Mark Feldman, M.B.A.
Information Systems
The Gillette Company

Elizabeth M. Ferrarini, B.S.
English
Self-Employed

James F. Ferreira, M.B.A.
Information Systems
Technical Aid Corp.

James J. Ferriter, M.B.A.
Health Management
Industrial Medical Center

John M. Ferro, M.S.
Accounting
Nashua Valley Tech. High School

William A. Ferson, M.A.
Economics
U.S. Dept. of Labor

George W. Fiddler III, M.B.A.
Accounting
Tetron Corp.

Stephen L. Fielding, M.A.
Sociology/Anthropology
Northeastern University

Barbara Ann P. Filo, Ph.D.*
History
CSA Financial Corp.

William D. Finan, Ed.D.
Mathematics

Charles A. Findley, Ph.D.*
Speech Communication

Francis X. Finigan, M.Ed.*
Mathematics
Winchester Public Schools

Joseph L. Finigan, M.Ed.
Mathematics
Rivers School

Albert J. Finney, Jr., B.S.*
Accounting
Raytheon Company

Richard D. Fiorentino, M.B.A.
Marketing
Adage

Charles Fischer, Jr., M.S.
Finance
Digital Equipment Corp.

Daniel H. Fisher, B.S.
Medical Laboratory Science
Northeastern University

Harold R. Fisher, J.D.
Information Systems
Commonwealth of Massachusetts

Marjorie Fisher, B.S.
Health Record Administration
Harvard Univ. Health Services

Charles E. Fiske, C.A.G.S.
Law Enforcement
Boston Univ. School of Medicine

Pennryn Fitts, M.A.
Law Enforcement
Chelmsford Police Department

James E. Fitzgerald, M.A.
Modern Language

Leo J. Fitzgerald, M.B.A.*
Industrial Management
General Electric Co.

Kevin T. Fitzpatrick, M.B.A.*
Finance
Boston Public Library

J. Joseph Fitzsimmons, M.B.A.*
Management
Polaroid Corp.

Roberta Fitzsimmons, J.D.
Business Law
Attorney at Law

James C. Flaherty, M.L.S.
Library Science
Framingham Public Library

Richard E. Flaherty, M.P.A.
Law Enforcement
Metropolitan District Police

Ruth W. Flaherty, M.B.A.
Human Resources Management

Frances B. Fleming, B.F.A.
Art
Self-Employed

William P. Fleming, M.B.A.
Marketing
St. Elizabeth's Hospital

Myrtle R. Flight, J.D.
Business Law

David E. Floreen, M.P.A.*
Political Science
Massachusetts Bankers Assoc.

Leo M. Flynn, M.B.A.*
Real Estate
Leo Flynn, R.E. & Appraising

*Denotes senior lecturer as of October 1985.

- Peter E. Flynn, J.D.**
Real Estate
Flynn Realty, Inc.
- Thomas J. Flynn, J.D.**
Human Resources Management
Thomas J. Flynn & Assoc.
- William B. Flynn, Ph.D.**
Psychology
Merrimack Valley College
- Philip S. Fogelman, M.A.**
Alt. Freshman/English
- Martin E. Foley, M.P.A.***
Law Enforcement
Massachusetts State Police
- Robert E. Foley, M.B.A.**
Accounting
Council for Economic Action
- Jennifer P. N. Foo, M.A.**
Economics
Northeastern University
- Armand L. Fortin, B.S.**
Purchasing
Honeywell, Inc.
- James Foss, Jr., LL.B.**
Human Resources Management
Federal Mediation & Concil. Serv.
- Douglas G. Foster, M.Ed.***
Earth Science
Catholic Memorial High School
- Gale P. Foster, B.S.***
Marketing
Foster & Associates
- Charles F. Fountain, M.S.**
Journalism
- Robert M. Fox, M.B.A.***
Marketing
Gerber Electronics
- Walter Foxtree, M.A.T.***
Art
University of Massachusetts
- Laura L. Frader, Ph.D.**
History
Northeastern University
- Thomas B. Francis, Jr., M.P.A.**
Human Resources Management
City of Boston
- Harriet Fraser**
Alt. Freshman/Language Skills
- Marie E. Fratoni, M.Ed.**
Speech Communication
- Howard H. Freedman, M.S.***
Accounting
Raytheon Company
- Raoul M. Freyre, S.C.D.**
Information Systems
University of Lowell
- Melvin W. Friedman, M.B.A.***
Management
M. W. Friedman Associates
- Martha R. Fuller, M.S.**
English
- Vincent J. Furlong, M.A.**
Industrial Management
Defense Supply Agency
- Neil A. Gaeta, M.S.**
Radiologic Technology
Food & Drug Administration
- Brian A. Gagne, M.B.A.**
Real Estate
Chanter Development Corp.
- W. Arthur Gagne, Jr., M.B.A.***
Management
Edadcon Services Co.
- Kenneth W. Gagnon, B.S.**
Law Enforcement
Chanter Development Corp.
- Nona Gainsforth, B.A.**
Music
Self-Employed
- John M. Gale, M.B.A.**
Radiologic Technology
- Esther M. Gallagher, D.M.D.***
Health Science
Tufts University
- Richard R. Gallagher, B.A.**
Information Systems
Marshfield High School
- Arthur R. Gallerani, M.B.A.**
Hotel & Restaurant Management
Middlesex Community College
- Gerald V. Galuardi, B.A.**
Health Record Administration
N.E. Deaconess Hospital
- Raul I. Garcia, D.M.D.**
Health Science
- A. Newall Garden, B.S.**
Journalism
Raytheon Company
- Rawle W. Garner, M.B.A.**
Law Enforcement
New England Business Corp.
- Donald E. Garrant, M.B.A.**
Real Estate
Wakefield Savings Bank
- Louise H. Garrido, J.D.**
Business Law
Goodhue Colt & Steffensen
- John D. Gavin, M.S.**
Law Enforcement
Waltham District Court
- Paul C. Gay, J.D.***
Business Law
Harrison & McGuire
- Jonathan Gbur, M.B.A.**
Transportation
Northern Transportation, Inc.
- Sandra E. Geer, M.Ed.***
Psychology
- Samuel S. Geller, M.B.A.**
Accounting
RTC Systems, Inc.
- Leanne M. George, B.A.**
Art
Self-Employed
- Anne M. Germain, Ph.D.**
Information Systems
John Hancock Insurance Co.
- Burton W. Gerrig, J.D.**
Law Enforcement
Community Health
- Lorine M. Getz, Ph.D.**
Philosophy/Religion
Boston Theological Institute
- Ara Ghazarians, M.A.**
Sociology/Anthropology
- David M. Ghazil, M.B.A.**
Human Resources Management
Honeywell, Inc.
- Peter F. Gibbs, M.B.A.**
Transportation
Peter F. Gibbs & Associates
- Katherine L. Gilbert, B.A.**
Sociology/Anthropology
Northeastern University
- Robert E. Gilbert, Ph.D.**
Political Science
Northeastern University
- Edwin S. Giles, Jr., B.S.***
Information Systems
Massachusetts Teachers Assoc.
- La Rue W. Gilleland, M.A.**
Journalism
Northeastern University
- Ruth Gilleran, M.B.A.**
Accounting
The Gillette Company
- William J. Gillespie, Ph.D.**
Therapeutic Recreation
Northeastern University
- Alan B. Gladstone, B.S.***
Accounting
Alan Gladstone, CPA
- Phyllis S. Glick, D.B.A.**
Political Science
Division of Family Health
- L. James Glinos, M.Ed.***
Human Resources Management
Glinos Associates
- Shlomo Globerson, D.B.A.**
Management
Northeastern University
- Victor B. Godin, D.B.A.**
Information Systems
Northeastern University
- Maureen D. Goggin, M.A.**
English
Northeastern University
- Leonard B. Goldberg, B.A.**
Radiologic Technology
- Meryl Goldberg, M.A.**
Music
- Robert L. Goldberg, M.B.A.***
Management
John Hancock Dist., Inc.
- Daniel Golden, Ph.D.**
English
Northeastern University
- Kenneth E. Golden, M.B.A.**
Information Systems
Prime Computer, Inc.
- Frederick T. Golder, Esq., LL.M.***
Human Resources Management
Self-Employed
- Stan Goldman, J.D.***
Political Science
Mass. Dept. of Mental Health
- Harold M. Goldstein, Ph.D.**
Economics
Northeastern University
- Howard I. Goldstein, J.D.**
Business Law
Self-Employed
- M. Alvin Goldstein, A.B.***
Information Systems
The Data Group Corp.

*Denotes senior lecturer as of October 1985.

Robert J. Goldstein, M.A.

Sociology/Anthropology
Pathways to Health

Roberta L. Golick, J.D.

Human Resources Management
Mass. Dept. of Labor & Industry

Judith R. Goodman, M.A.*

English

Leon M. Goodman, M.B.A.*

Management
Leon Goodman Associates

Robert S. Goodman, M.A.

Human Resources Management
Evans Product Co.

Frederick R. Goodridge, M.B.A.

Transportation
Frederick Goodridge Assoc.

Stephen Goodyear, M.A.*

Modern Language
Hull Public Schools

Pamela Gordan, E.D.

Alt. Freshman/English

Daniel D. Gordon, M.A.*

Economics
Salem State College

Myron S. Goretsky, Esq., J.D.

Hotel & Restaurant Management

S. Peter Gorshel, LL.B.

Real Estate
Self-Employed

Mary Jane Gorton, M.Ed.*

Art
Babson College

Leslie C. Gosule, B.S.*

Accounting
Leslie C. Gosule & Company

Amy S. Gottfried, M.A.

Alt. Freshman/English

Daniel Z. Gould, M.B.A.*

Industrial Management
GenRad, Inc.

Saeed Gozashti, M.S.

Chemistry
Northeastern University

David F. Grace, C.A.G.S.*

English
Lasell Junior College

Daniel A. Grady, M.B.A.*

Accounting
Bose Corp.

William E. Grady, B.S.*

Industrial Management
Grady & Associates

Robert T. Granfield, M.A.

Sociology/Anthropology
Northeastern University

Daniel J. Grant, Jr., M.A.

Art
Avco Systems

William H. Grass, M.A.

Music
Boston Conservatory of Music

Leon S. Graubard, M.A.*

Economics
Worcester Polytechnic Institute

Lewis Greenberg, M.A.

Psychology
Northeastern University

Claire M. Greene, M.B.A.

English/Marketing
Northeastern University

John T. Gregg, B.A.*

Real Estate
Beal & Company

Kristo A. Gregory, M.B.A.*

Finance
Prudential Bache Securities

Ann M. Grennell, M.A.

Alt. Freshman/History
Boston College

Gerald R. Griffin, Ph.D.*

English
Northeastern University

John L. Griffith, B.S.*

Management
State Dept. of Environmental Mgt.

Donna P. Grosjean, B.S.

Biology
Brigham & Womens Hospital

Sidra Gruss-Lotman, M.A.

Therapeutic Recreation
H. Lotman and Co., Inc.

John J. Guarino, M.S.

Biology
Northeastern University

Cherif Guenoune, M.A.

Sociology/Anthropology

Ronald E. Guittarr, B.S.*

Human Resources Management
Raytheon Company

Reginald W. Hache, M.A.*

Music
Northeastern University

Edward A. Hacker, Ph.D.*

Philosophy/Religion
Northeastern University

Joanna Hadjiocostandi, M.A.

Sociology/Anthropology
Northeastern University

William T. Hadley, B.S.

Marketing
The Hadley Company

Vivian M. Haggis, M.S.

Information Systems

Gary J. Hajduk, M.B.A.

Finance
Designpak Inc.

Monica M. Halas, J.D.

Human Resources Management
Greater Boston Legal Services

Kenneth W. Hale, M.B.A.

Accounting
Ernst & Whinney

John P. Haley, C.A.G.S.

Information Systems
City of Revere

Jay A. Halfond, M.B.A.

Management

Barry D. Hall, B.S.

Radiologic Technology
Brigham & Womens Hospital

James F. Hall, M.A.

Chemistry
Northeastern University

John F. Halloran, B.A.

Marketing
Jacksonville Port Authority

Paul M. Halloran, B.S.*

Information Systems
Raytheon Company

Michael C. Halpern, B.S.

Information Systems
Comp. All Systems, Inc.

Pamela A. Halpern, M.S.

Information Systems
Comp. All Systems, Inc.

Donald J. Halpin, M.B.A.*

Finance
Winchester Financial Mgt. Corp.

Isadore Halzel, M.B.A.*

Management
Charles Stark Draper Labs

Jacalyn S. Hamada, B.A.*

Therapeutic Recreation
Boston University

Paula J. Hammett, B.S.

Medical Laboratory Science
Corning Medical

Susan C. Hammond, C.P.A.

Accounting
The Yankee Co., Inc.

Suzanne L. Hamner, M.A.

Alt. Freshman/History

William F. Hancock, Jr., M.B.A.*

Finance
Digital Equipment Corp.

Carolyn Haneke, B.A.

Technical Communications
Self-Employed

Francis R. Hankard, M.A.*

Law Enforcement
Mass. Dept. of Public Safety

Mary V. Hanley, M.A.

Nursing

Christine M. Hannula, B.A.

Technical Communications
Wang Laboratories

Robert A. Hannula, M.A.

Technical Communications
Digital Equipment Corp.

Joseph J. Hansen, M.B.A.*

Mathematics
Raytheon Company

Norman E. Hansen, M.B.A.*

Marketing
Mount Ida College

Melanie I. Harasym, M.S.

Biology

Richard A. Hargreaves, M.A.

Mathematics
Westwood High School

Priscilla G. Harmel, M.Ed.

Drama

Joyce L. Harper, M.A.

Technical Communications
Northeastern University

David J. Harrigan, M.B.A.*

Management Sciences
D. J. Harrigan Associates

Paul E. Harrington, M.S.

Economics
Northeastern University

Raymond P. Harrington, Ph.D.

Alt. Freshman/History

Ruth Ann M. Harris, Ph.D.*

History
Northeastern University

*Denotes senior lecturer as of October 1985.

- David Harrison, M.S.**
Management
The Carlson Corp.
- Thomas M. Hart, M.S.**
Accounting
U.S. Treasury
- Harold Harutunian, Ph.D.***
Mathematics
Salem State College
- Ruth Harutunian, C.A.G.S.**
Mathematics
Watertown School Department
- Kathleen M. Harvey, M.Ph.**
Health Science
Commonwealth of Massachusetts
- Martha S. Hassell, B.A.**
Art
N.E. School of Photography
- Eva C. Havas, Ph.D.**
Sociology/Anthropology
Northeastern University
- Donald R. Hayden, B.S.***
Information Systems
Digital Equipment Corp.
- David W. Hayes, Esq., LL.M.**
Political Science
The Seiler Corporation
- Kathleen H. Hayes, M.Ed.**
Women's Career Program
Northeastern University
- Robert T. Heald, M.B.A.***
Accounting
Heald Hoffmeister and Co.
- A. R. Heanue, B.A.**
Transportation
Heanue Management Services
- James L. Hearn, M.B.A.**
Health Management
Peer Review Analysis, Inc.
- Warren K. Heckman, M.A.***
Management
W. K. Heckman Associates, Inc.
- Barbara A. Heffner, M.S.**
Technical Communications
McCormack and Dodge
- F. Timothy Hegarty, Jr., J.D.**
Real Estate
Norfolk & Dedham Fire Ins. Co.
- Stephen J. Heinen, B.A.**
Psychology
Northeastern University
- Louise H. Hekimian, M.B.A.**
Management
- Patricia Heller, M.S.**
Health Record Administration
Northeastern University
- Les K. Hemmings, M.Ed.**
Management
- Maher M. Henary, B.S.**
Chemistry
Northeastern University
- Thomas R. Henderson, Jr., M.B.A.**
Accounting
Polaroid Corp.
- Robin M. Hendrich, Ed.D.***
Music
Northeastern University
- George S. Hennessy, M.B.A.***
Marketing
Xyplex
- Gerald H. Herman, M.A.***
History
Northeastern University
- George M. Herrick, M.B.A.***
Finance
John E. Cain Co.
- Wayne C. Heward, M.B.A.**
Human Resources Management
Northrop Corp.
- Jennifer N. G. Hicks, M.A.**
English
University of Massachusetts
- Michael J. Hicks, M.B.A.**
Information Systems
Beverly Hospital
- Robert L. Hicks, M.B.A.**
Finance
Bridgewater State College
- Chester W. Higgins, Ph.D.***
Management
- Peter Higgins, M.B.A.***
Accounting
Xtrax Corp.
- Sean T. Higman, M.B.A.**
Accounting
Sanders Associates, Inc.
- Lloyd H. Hill, J.D.**
Human Resources Management
City of Quincy
- Stephen A. Hiltz, M.A.**
Alt. Freshman/History
Northeastern University
- James R. Hindman, M.B.A.***
Human Resources Management
Northrop Corp.
- William G. Hines, B.S.**
Marketing
- David C. Hirschy, Ph.D.**
Technical Communications
Massasoit Community College
- Christine L. Hobart, D.B.A.**
Human Resources Management
Northeastern University
- Mark O. Hodgson, M.A.**
Sociology/Anthropology
McLean Hospital
- Therese M. Hofmann, M.A.**
Speech Communication
Seabird Associates
- Lisa M. Holt, M.A.**
Speech Communication
- John E. Hopkins, M.B.A.**
Marketing
Codex Corp.
- Morris Horowitz, Ph.D.**
Economics
Northeastern University
- Geralyn Horton, M.A.**
Alt. Freshman/Language Skills
- John W. Hosmer, Jr., M.B.A.**
Finance
Boston Five Cent Savings Bank
- William J. Hourihan, Ph.D.**
History
Northeastern University
- Donald R. Howard, B.A.**
Economics
Northeastern University
- Elizabeth P. Howard, M.S.**
Nursing
Simmons College
- Martin J. Howard, M.B.A.**
Accounting
Boston University
- Jane A. Howe, B.S.**
Sociology/Anthropology
- Jane T. Howe, M.B.A.**
Finance
- Richard C. Howland, B.A.**
Journalism
BASF Systems Corp.
- George B. Hrabec, M.S.**
Medical Laboratory Science
Whidden Memorial Hospital
- Thomas J. Hubbard, M.B.A.**
Marketing
Epson America, Inc.
- Margaret C. Huff, B.A.**
Philosophy/Religion
- Anthony H. Hull, Ph.D.***
History
U. Mass/Boston
- Thomas K. Humphreys, M.A.**
Economics
Kidder Peabody & Co.
- Philip M. Hurdle, M.B.A.**
Management
McLean Communications, Inc.
- Daniel F. Hurley, LL.B.***
Human Resources Management
Consultant
- Roger Hurwitz, M.A.**
Political Science
Massachusetts Institute of Technology
- Linda A. Hyde, B.S.**
Health Record Administration
Medical Systems, Inc.
- Masanori Ichizawa, Ph.D.**
Philosophy/Religion
- Jack F. Ingalls, M.S.***
Law Enforcement
Consultant
- John J. Irwin, Jr., J.D.***
Law Enforcement
Massachusetts Supreme Court
- Muhammad F. Islam, M.A.**
Economics
Northeastern University
- Herbert H. Itzkowitz, M.B.A.***
Accounting
Forman, Itzkowitz & Berenson
- Carl J. Izzo, B.S.**
Real Estate
Bank of Boston
- Judith Jack, B.A.**
Technical Communications
GTE Corp.
- Charles E. Jackson, B.A.**
Marketing
New England Advertising Week
- Phillip S. Jackson, Esq., LL.B.***
Business Law
Self-Employed

*Denotes senior lecturer as of October 1985.

Donald M. Jacobs, Ph.D.

History
Northeastern University

Arthur I. Jacobsen, M.B.A.

Finance
Genesis Properties

Karen Jacobsen, B.A.

Health Management
Northeastern University

Joshua R. Jacobson, M.A.

Music
Northeastern University

Thomas E. Jaillet, M.A.*

Mathematics
Sandwich High School

Paul L. Jalbert, Ph.D.

Sociology/Anthropology
Northeastern University

Richard A. James, M.B.A.

Human Resources Management
Uniglobe Advantage Travel

Paul A. Janell, Ph.D.

Accounting
Northeastern University

Nan-In Jang, B.S.

Chemistry
Northeastern University

Edward L. Jaye, M.B.A.

Marketing
Brooks Automation

Georgeann Jenkins, M.Ed.

Radiologic Technology
Boston City Hospital

Annette S.L. Johansson-Los, M.A.

Speech Communication
Self-Employed

Carson C. Johnson, Jr., Ph.D.*

Psychology
Emmanuel College

Donald R. Johnson, M.B.A.*

Human Resources Management
New England Telephone Co.

Janet Johnson, M.B.A.

Finance
Citizen Bank

Marsha Johnson, M.A.

Music
Boston Bay Capitol, Inc.

Richard F. Johnson, Ph.D.

Psychology
U.S. Army Research Institute

Robert F. Johnson, J.D.*

Law Enforcement
First Security Service Corp.

Rosaleen M. Johnson, M.A.

Mathematics
Milford High School

James R. Johnston, B.S.

Real Estate
Equitable Life Ins. Co.

Joseph M. Jordan, M.P.A.*

Law Enforcement

David M. Joulfaian, M.A.

Economics
Mass. Dept. of Revenue

James M. Joyce, M.B.A.

Transportation
Stop & Shop Co., Inc.

Jane Joyce, M.Ed.

Women's Career Program
Sweetheart Products Group

Joseph A. Kaczenas, M.B.A.*

Information Systems
N.E. Mutual Life Ins. Co.

Mark H. Kaizerman, M.B.A.

Accounting
W. F. Wood Corp.

Katherine M. Kalliel, M.Ed.

Women's Career Program
Boston University

Edward L. Kandib, M.Ed.*

Accounting
Public Accountant

Charles F. Kane, M.B.A.

Finance
Prime Computer

Donald E. Kane, M.P.A.

Law Enforcement
Barnstable Police Department

Martin J. Kane, M.B.A.*

Purchasing
Raytheon Company

Edward M. Kaplan, M.S.

Information Systems
Massachusetts General Hospital

Mort S. Kaplan, M.A.*

English
Northeastern University

Judith Kapuscinski, M.Ph.

Health Management

Steven D. Karchmar, M.B.A.

Human Resources Management
Wyman-Gordon Co.

Ramakrishna Karedla, A.B.

Alt. Freshman/Mathematics

Gary M. Karelis, M.B.A.*

Accounting
Karelis Realty

Charles Karis, Ph.D.

Psychology
Northeastern University

Ann C. Karnofsky, M.A.

Music

Catherine A. Karp, M.S.

Biology
Joslin Diabetes Center

Deborah S. Katz, M.B.A.

Finance
Hilton Walker & Books

Robert S. Katz, B.S.

Journalism
Transcript Newspapers, Inc.

Ronald P. Kaufman, B.S.*

Law Enforcement
Mass. Dept. of Public Safety

Walter E. Kearney, M.B.A.*

Accounting
Northeastern University

John S. Kearns, Ph.D.

Psychology

John Keating, M.S.

Alt. Freshman/Mathematics

Philip E. Keith, M.B.A.

Management
Controlonics Corp.

Jeffrey W. Kelly, A.S.

Radiologic Technology
St. Anne's Hospital

Thomas W. Kelly, M.B.A.*

Information Systems
Massachusetts General Hospital

Edward C. Kennedy, B.S.

Law Enforcement

Thomas J. Kennedy, M.B.A.

Finance
MBTA

James M. Kenney, M.B.A.

Management Sciences
Polaroid Corp.

Margaret L. Kent, M.A.

English

Philip M. Keohane, M.A.

Journalism
GTE Corp.

Janice D. Keough, M.A.

English

North Shore Community College

Jill P. Kern, M.B.A.

Management Sciences
Digital Equipment Corp.

Robert H. Ketchum, D.B.A.

Management
Northeastern University

Raht Ketusingha, M.A.

Economics
Northeastern University

Sylvia P. Keyes, M.B.A.

Management
Bridgewater State College

Brian L. King, M.B.A.*

Marketing
Avco Systems Division

Janet M. King, Ph.D.

English

Marilyn King, M.S.

Nursing
Northeastern University

Sandra J. King, B.S.*

Information Systems
Shawmut Bank of Boston

Sandra T. King, M.B.A.

Marketing
Wear Guard

Gary F. Kinsella, J.D.*

Political Science
Attorney at Law

Paul G. Kinsella, B.S.*

Real Estate
Commonwealth Real Estate Group

Joseph N. Kly, Ph.D.

Political Science

James P. Kneeland, M.B.A.

Information Systems
F. Data Systems Inc.

Claire E. Knox, M.L.S.*

English
Boston University

John L. Kobrick, Ph.D.*

Psychology
U.S. Army Research Institute

Joan A. Koffman, J.D.

Real Estate
Northeastern University

Bernhard J. Kohler, M.B.A.*

Industrial Management
Polaroid Corp.

Gerald G. Kokos, M.B.A.

Finance
Prime Computer, Inc.

Anja S. Kondo, M.A.

Sociology/Anthropology

Constantina Kondopoulos, M.A.

Alt. Freshman/Sociology

Kenneth M. Kopec, M.D.

Health Science

Roberta L. Kosberg, Ph.D.

Speech Communication
Northeastern University

James F. Kovacevic, A.S.

Art
Mark Burton, Inc.

Bennett L. Kramer, M.S.*

Information Systems
Massasoit Community College

Rheta I. Kramer, M.A.

Mathematics

Willard Krasnow, J.D.

Human Resources Management
Raytheon Company

Elliott A. Krause, Ph.D.

Sociology/Anthropology
Northeastern University

David H. Kravetz, J.D.*

Business Law
Attorney at Law

Steven A. Kravetz, M.B.A.

Accounting
Apparel Retail Corp.

Jane M. Kretchman, M.S.*

Medical Laboratory Science
Computers in Medicine

Laura J. Krims, Esq., J.D.

Business Law
Ficksman & Conley

Marcia A. Krolkowski, M.S.

Finance
Compugraphic Corp.

Michael P. Krone, Esq., J.D.

Business Law
Attorney at Law

Howard S. Kruger, B.S.

Health Science
Northeastern University

Susan R. Kuder, M.A.

English
Century 21 Silva Realty

Sudhir K. Kulkarni, M.S.

Chemistry
Northeastern University

Daniel D. Kurylo, M.A.

Psychology
Northeastern University

Ann E. Kuzdale, M.A.

Alt. Freshman/History

Stephen Kwan, D.B.A.

Information Systems
Northeastern University

Anthony J. LaCava, Jr., B.S.

Marketing
Peat Marwick Mitchell & Co.

William R. LaCourse, B.S.

Chemistry
Northeastern University

Bruce G. LaFlamme, M.S.W.

Health Management
Mass. Dept. of Mental Health

Wendy W. Laird, M.S.

American Sign Language

Nancy E. Lambert, D.B.A.

Marketing
Northeastern University

Paul K. Lambert, M.B.A.*

Transportation
Consultant

Philip J. Lamy, M.A.

Sociology/Anthropology
Essex Institute

Stephen R. Lancey, Ph.D.

Psychology
Boston VA Medical Center

Robert H. Landry, M.B.A.*

Accounting
Massasoit Community College

Gabriel Lanyi, Ph.D.

Technical Communications

Stephen R. Larson, M.S.

Chemistry
Northeastern University

Pearl L. Lau, B.A.

Art
Little Brown Publishing Co.

Philip J. Laurens, M.S.*

Mathematics
Bentley College

Irma H. Lauter, M.S.M.E.

Information Systems
NYNEX

Joan H. Lautman, M.A.

Drama
Metro. Area Planning Council

Cindy P. Lawler, M.A.

Psychology
Northeastern University

Charles E. Lawton, M.Ed.

English
Rhode Island College

Alfred Lazzeri, M.F.A.*

Art
Walpole High School

James N. LeBlanc, M.A.

Information Systems
Burlington Schools

Paul A. LeBlanc, M.B.A.

Finance
Digital Equipment Corp.

Stewart L. Lebo, M.S.

Information Systems
Bank of Boston

Hollington Lee, B.S.

Biology
Forsyth Dental Center

Carlton Lehmkuhl, Ph.D.

Alt. Freshman/Mathematics

Constance Leigh, M.A.

English

D. Paul Leitch, Ph.D.

Psychology
U.S. Army Natick R&D Command

Bernard J. Lemire, B.S.

Chemistry
Northeastern University

Daniel A. Lennon III, M.A.

Sociology/Anthropology
Northeastern University

Philip W. Lequesne, Sc.D.

Chemistry
Northeastern University

Thomas R. Lerra, Ph.D.

Management
American Institute of Banking

Mary F. Leslie, M.Ed.

Alt. Freshman/Language Skills
Northeastern University

Marvin X. Lesser, Ph.D.

English
Northeastern University

Albert M. Levenson, M.B.A.*

Management Sciences
Charles Stark Draper Labs

Ronald M. Levenson, B.S.

Accounting
Peat Marwick Mitchell & Co.

George E. Levesque, M.S.

Information Systems
Massachusetts General Hospital

Barry S. Levine, M.Ed.

Health Science
Self-Employed

Philip A. Levy, B.A.

Technical Communications
Computervision Corp.

David J. Lewer, M.B.A.

Management
Northeast Leasing Assoc., Inc.

Stephen P. Lewontin, Ph.D.

Political Science
Gamma-Liaison Photo News

Domenic J. Liberatore, M.B.A.

Industrial Management
Raytheon Company

Sandra M. Lictor, M.S.

Information Systems
Raytheon Company

Richard Lindhe, D.B.A.

Accounting
Northeastern University

Joanne G. Linowes, M.A.*

Speech Communication
Research Communications, Inc.

Robert L. Litrownik, Ph.D.

Psychology
Mystic Valley Mental Health Ctr.

George F. Litterst, M.A.

Music
N.E. Conservatory of Music

Walter A. Littlefield, M.A.

Speech Communication
Emerson College

Thomas E. Littlehale, M.Ed.*

Information Systems
John Hancock Life Ins. Co.

J. Antony Lloyd, M.A.*

English
Beth Israel Hospital

Jeannie E. Lloyd, M.A.

Alt. Freshman/English

Joseph S. Lo Castro, Ph.D.*

Psychology
Boston VA Medical Center

Helen M. Loeb, Ph.D.
Technical Communications
 Applied Expert Systems

Cary P. Logan, M.D.
Health Science

Richard C. Logan, M.B.A.*
Health Management
 Massachusetts General Hospital

Edward J. Lonczak, M.B.A.*
Management
 Commercial Union Insurance Co.

Miller C. Lovett, Ph.D.*
Management
 University of Mass./Boston

Hope E. Luder, M.A.
History
 Burlington High School

Daniel G. Lutts, M.A.
Technical Communications
 Information Resources, Inc.

Daniel W. Lyons, J.D.
Business Law
 Silver & Ahern

Paul E. Lyons, B.S.*
Industrial Management
 The Gillette Company

Paul E. Lyons, M.Ed.
Mathematics
 Cambridge School Department

Robert L. Mabardy, M.B.A.*
Human Resources Management
 Ram Contracting, Inc.

William J. Macanka, Ph.D
Chemistry
 Regis College

Andrew C. MacAulay, M.S.*
Chemistry
 N.E. Medical Center Hospital

Edward R. MacCormack, M.P.A.*
Law Enforcement
 Boston Edison Company

Joseph L. K. MacDonald, B.S.
Therapeutic Recreation
 Parks and Recreation Department

Patricia R. MacDonald, M.A.
English

Thomas J. MacDonough, M.A.*
History
 Town of Norwood

Harry A. MacKay, Ph.D.
Nursing
 Northeastern University

Ronald C. MacKay, M.A.
English
 Northeastern University

Alan A. Mackey, A.M.*
Mathematics
 Registry of Motor Vehicles

Charles M. MacLean, J.D.
Law Enforcement
 Attorney at Law

Sylvia A. MacPhee, M.S.*
Sociology/Anthropology
 Lasell Junior College

Edward F. Madden, A.B.
Law Enforcement
 Mass. Bay Investigators

William J. Madden, B.S.*
Accounting
 Self-Employed

Michael J. Maggard, D.B.A.
Management
 Northeastern University

Judith Magidson, M.Ed.
Alt. Freshman/Language Skills
 Northeastern University

Dominic J. Magnarelli, J.D.
Mathematics
 Wilmington Public Schools

John A. Maguire, B.S.*
Information Systems
 Guilford Transportation

Thomas J. Maguire, J.D.
Law Enforcement

Timothy J. Maher, Ph.D
Health Science
 Mass. College of Pharmacy

Sabri S. Mahmoud, Ph.D.
Chemistry
 Northeastern University

John J. Mahon, J.D.
Human Resources Management
 Raytheon Company

James P. Mahoney, Esq., J.D.
Health Record Administration
 Boston City Hospital

Susan S. Maire, J.D.
Business Law

Robert E. Mairs, B.S.*
Human Resources Management
 Raytheon Company

George P. Makris, B.S.
Marketing
 Northeastern University

Helen C. Makris, M.Ed.
Alt. Freshman/English

Hamdy M. Maksoud, M.S.
Chemistry
 Northeastern University

Judith Mallette, B.S.
Mathematics

Robert G. Mallion, M.A.
Earth Science
 Tasc Analytic Science Corp.

John F. Maloney, M.Ed.
Mathematics
 Boston Latin School

Shanrokh S. S. Manesh, M.S.
Mathematics

Jeremiah J. Manfra, B.S.
Law Enforcement
 Boston Police Department

George J. Manikas, B.S.*
Law Enforcement
 Raytheon Company

Anne S. Manion, M.B.A.
Health Science

Albert R. Manson, M.Ed.*
Information Systems
 Honeywell Information Systems

Jack J. Manuel, Ph.D.*
Philosophy/Religion
 Creative Humanistics, Inc.

John A. Manzo, Jr., M.S.*
Industrial Management
 N.E. Medical Center Hospital

Barbara B. Marcel, M.A.
Psychology
 Northeastern University

Marie D. Marchesano, B.A.
Technical Communications
 Self-Employed

Alfred G. Marcotte, M.S.E.E.*
Mathematics
 LFE Corp.

Sophia Margotta, D.B.A.
Finance
 Northeastern University

Julius Mariasis, M.B.A.*
Management
 World Markets, Inc.

Steve J. Marino, B.S.
Alt. Freshman/Mathematics
 North Intermediate School

Robert E. Marotta, B.A.
Technical Communications
 Digital Equipment Corp.

Rosemary T. Marotta, Ed.D.
English
 Apollo Computer

Lynn W. Marples, M.B.A.
Finance
 Northeastern University

Bruce E. Marquis, M.A.
Health Management
 Results Service Co., Inc.

Arnold M. Marrow, Esq., LL.B.*
Human Resources Management
 National Labor Relations Board

Stephanie K. Marrus, M.B.A.
Marketing

Barry H. Marshall, M.B.A.*
Accounting
 Digital Equipment Corp.

Barbara E. Martin, B.A.
Medical Laboratory Science
 Northeastern University

John A. Martin, M.B.A.*
Accounting
 Northeastern University

John B. Martin, B.S.
Information Systems
 Raytheon Data Systems

John J. Martin, M.B.A.*
Human Resources Management
 Federal Mediation & Concil. Services

Leo J. Martin, B.S.*
Law Enforcement

James F. Mason, M.B.A.
Marketing

John L. Mason, J.D.
Real Estate
 Mason Goldman & McAuliffe

Richard P. Mason, M.B.A.*
Information Systems
 Avco Corp.

Russell B. Mason, M.B.A.*
Marketing
 Raytheon Company

Joseph D. Mastone, M.A.
Law Enforcement
 EG&G Bionomics

Burton N. Matross, M.B.A.
Information Systems
 General Electric Company

George D. Matson, M.A.*
Speech Communication
Hesser College

Kevin E. Mautte, M.S.
Biology
Northeastern University

Lawrence H. Mayer, B.S.
Human Resources Management
Raytheon Company

Kelly Mayo, M.S.
Nursing
Northeastern University

Teresa A. Mayors, M.A.
Sociology/Anthropology
Northeastern University

Shampa Mazumdar, B.A.
Sociology/Anthropology
Northeastern University

James J. Mazza, M.P.A.*
Law Enforcement
Woburn Police Department

Michael V. McAulay, A.S.
Technical Communications
Digital Equipment Corp.

Gerald S. McAuliffe, J.D.*
Law Enforcement
Attorney at Law

Robert P. McAuliffe, M.B.A.*
Marketing
Genrad, Inc.

Ronald J. McBrien, M.B.A.
Marketing
Olin Corp.

Paula E. McCabe, M.A.
Sociology/Anthropology
Northeastern University

Larry D. McCargar, Ph.D.
Philosophy/Religion

Daniel J. McCarthy, D.B.A.*
Management
Northeastern University

Francis J. McCarthy, M.B.A.
Information Systems
Leverone & Company, C.P.A.

John D. McCarthy, M.P.A.
Accounting
U.S. Defense Department

John J. McCarthy, Jr., M.B.A.
Marketing

Rita M. McCarthy, M.B.A.
Marketing
D. C. Heath & Company

William S. McCarthy, J.D.
Law Enforcement
Attorney at Law

Jeffrey C. McConnell, M.A.
Philosophy/Religion
Massachusetts Institute of Technology

John E. McCormack, M.B.A.
Accounting
Youville Hospital, Inc.

Gail McCormick, B.A.
Hotel & Restaurant Management

Leo F. McCue, Jr., Ph.D.*
History
Central Catholic High School

Joseph P. McDermott, M.Ed.
Mathematics
Algonquin Regional High School

Joseph T. McDonnell, B.S.
Law Enforcement
Mass. District Court System

Lloyd W. McElaney, M.Ed.
Information Systems
Dept. of Public Welfare

Robert M. McEntire, Ph.D.
Speech Communication

Patrick J. McGeary, M.A.
English
Software International

Daniel R. McGrath, M.Ph.
Psychology
Northeastern University

John B. McGrath, B.S.*
Finance
New England Telephone Co.

Mimi M. McGrath, M.A.
Women's Career Program
Mimi McGrath Consultants

Eugene F. McGrory, B.A.
Accounting
Internal Revenue Service

James L. McGuinness, Jr., M.B.A.*
Accounting
EG&G, Inc.

Thomas J. McHugh, M.B.A.*
Finance
Self-Employed

Robert A. McKean, M.A.
Technical Communications
Chart Communications

Raymond P. McKeon, M.P.A.
Law Enforcement
Chelmsford Police Department

Kevin J. McLatchy, M.F.A.
Art
Self-Employed

June E. McLaughlin, M.S.
Health Management
Youville Hospital, Inc.

Mark W. McLaughlin, M.A.
English

Paul D. McLaughlin, M.S.W.
Health Management
Central Boston Elder Services

Robert W. McLean, M.B.A.
Hotel & Restaurant Management
Self-Employed

Thomas C. McLellan, M.S.
Accounting
Investors Relocation Group

Denise M. McMahon, B.S.
Music
St. Andrew's Episcopal Church

Joseph W. McNabb, M.A.
Health Science
Laboure College

Pauline M. McNulty, B.S.
Information Systems
Self-Employed

Clay McShane, Ph.D.
History
Northeastern University

Michael S. Mehrmann, Esq., A.S.
Business Law
Law Office of I. Oppenheim

Janice B. Meisenhelder, M.S.
Nursing
Northeastern University

Frank D. Mele, B.S.*
Accounting

Bruce A. Mellin, M.S.*
Earth Science
Town of Chelmsford

Dirshaye Menberu, M.S.
Chemistry
Northeastern University

Michael E. Merisotis, B.S.
Health Record Administration
Somerville Hospital

Lloyd B. Merrill, B.S.
Information Systems
Grossman's, Inc.

George B. Merry, A.B.*
Journalism
Christian Science Publishing

Charles A. M. Meszoely, Ph.D.*
Biology
Northeastern University

Leonard F. Meuse, Jr., M.B.A.
Technical Communications
Polaroid Corp.

Michael E. Meyer, Ph.D.
Philosophy/Religion
Northeastern University

Peter N. Michaelson, M.B.A.
Marketing
Maslow Gold & Rothschild, Inc.

Ronald L. Michaud, Ph.D.
Psychology

Bernard Michels, M.A.
Sociology/Anthropology
Brandeis University

Elmer B. Michelson, M.A.*
English

Philip R. Miles, M.B.A.
Accounting
Polaroid Corp.

Adriene R. Miller, M.A.
Sociology/Anthropology
Northeastern University

Charles J. Miller, M.S.
Information Systems

Mary-Margaret Miller, B.S.
Information Systems
Codman & Shurtleff, Inc.

Eileen T. Mills, M.A.
Alt. Freshman/English

Patrick N. Mingoelli, M.B.A.
Accounting
Digital Equipment Corp.

Robert J. Minichiello, D.B.A.
Marketing
Northeastern University

Helena C. Minton, M.F.A.
English
University of Lowell

Richard R. Miranda, M.B.A.*
Purchasing
South Shore Bank

Kamlesh Misra, M.A.
Alt. Freshman/Economics

Charles E. Mokotoff, M.A.
Music

*Denotes senior lecturer as of October 1985.

James F. Molloy, Jr., M.B.A.

Transportation
Northeastern University

Stephen P. Molloy, R.R.A., B.A.

Health Record Administration

Lawrence F. Monaghan, B.S.

Information Systems
First National Bank

Robert L. Montminy, B.S.

Information Systems
Marshfield School Department

Rajen Mookerjee, M.A.

Economics
Northeastern University

John L. Moore, M.F.A.

Art

Patricia A. Moore, M.A.

Health Science
Laboure Junior College

Thomas E. Moore, D.B.A.

Marketing
Northeastern University

Patricia B. Moran, M.Ed.

Mathematics
Saugus High School

Leslie B. Morash, M.B.A.*

Transportation

William R. Morin, B.S.

Information Systems
MBTA

Jerry A. Morris, M.B.A.*

Human Resources Management
Asquith & Jackson Assoc.

Richard M. Morrison, M.B.A.*

Information Systems
Strategic Planning Institute

Mary Morrissey, M.A.

Alt. Freshman/English

Peter J. Morrissey, B.S.

Information Systems
MBTA

Mark B. Moss, Ph.D.*

Psychology
University Hospital

Henry A. Moultrie II, M.B.A.

Management
Mission Church of Christ, Inc.

Edmond J. Moussally, M.Ed.

Music
Northeastern University

Carl F. Moxey, Ph.D.

Biology
Self-Employed

James D. Mukjian, M.B.A.*

Industrial Management
U.S. Defense Logistics Agency

Barbara Mulcahy, M.A.

Alt. Freshman/English

John Mulhall, M.A.

Alt. Freshman/Language Skills

Edward J. Mulholland, Ph.D.

Economics
Regis College

Paul V. Mulkern, M.S.*

Human Resources Management

Robert W. Mullaly, Ph.D.

Psychology
Mullaly Associates

Edmund J. Mullen, M.Ed.*

History
Northeastern University

Francis E. Mullen, B.S.*

Law Enforcement
Quincy Police Department

William S. Mullen, M.A.*

Political Science
Foxboro School System

Ramaswami Murali, D.B.A.

Finance
Northeastern University

Charles W. Murphy, M.B.A.*

Finance
Bunker Hill Community College

Daniel C. Murphy, M.S.

Journalism
Malden Evening News

David M. Murphy, Ph.D.

Speech Communication

James F. Murphy, B.S.

Law Enforcement
Haverhill Police Department

Kevin Murphy, M.A.

Art
American Landmarks

Paul J. Murphy, J.D.*

Management
General Electric Company

Richard T. Murphy, M.Ed.

Mathematics
Boston Public Schools

Vyasraj V. Murthy, M.B.A.

Management Sciences
Digital Equipment Corp.

John A. Mylotte, B.A.

Technical Communications
Navy Cloth & Textile Research

Afsaneh Nahavandi, M.B.A.

Human Resources Management
Northeastern University

Julie M. Nardone, M.A.

Sociology/Anthropology

Shashi Nath, Ph.D.*

Sociology/Anthropology

Mohammed A. Nawawi, Ph.D.

Political Science
Northeastern University

Barbara E. Neale, M.Ed.

Speech Communication
Independent Concept Consultants

William P. Needham, M.A.

Psychology
Northeastern University

Theodore H. Needle, B.S.*

Accounting
Needle & Needle

Mitchell J. Nelles, Ph.D.

Biology
Cambridge Research Laboratory

Carl W. Nelson, D.B.A.

Management
Northeastern University

David C. Nelson, B.S.*

Accounting
Self-Employed

Cynthia J. Neumann, M.S.

Nursing
Visiting Nurse Assoc. of N.S.

Floyd Newton, M.A.

Art
Revolver, Inc.

Thomas J. Neylon, Jr., M.A.*

English
Watertown Public Schools

Janet M. Nichols, M.B.A.

Management
Self-Employed

Bruce E. Nickerson, Ph.D.*

English
Avco/Textron

Marion L. Niernitz, C.A.G.S.

Human Resources Management
John Hancock Life Insurance Co.

Gunnar Y. Nilsson, B.A.

Art
Hewlett-Packard Corp.

James C. Nolan, M.S.W.

Human Resources Management
MBTA

Seyed H. Noorian, M.B.A.

Finance

John H. Northrup, Ph.D.

Accounting
Northeastern University

Richard W. Norton, B.A.*

Information Systems

Vincent G. Norton, M.B.A.

Human Resources Management
Raytheon Company

Edward G. Novello, M.B.A.*

Transportation
Best T&D Associates

Alexander S. Nunes, M.S.

Information Systems
Data General Corp.

Norbert F. Nunes, M.A.*

English
Mass. Bay Community College

Azinna Nwafor, Ph.D.

Political Science

David H. O'Brien, M.B.A.*

Accounting
N.E. Merchants Bank

Ellen G. O'Brien, M.Ed.

Human Resources Management
Digital Equipment Corp.

John E. O'Brien, M.B.A.

Human Resources Management
Hospital Association

Richard J. O'Brien, B.S.

Information Systems
Massachusetts General Hospital

Robert M. O'Brien, B.S.*

Information Systems
Northeastern University

William T. O'Brien, M.P.A.*

Law Enforcement
Boston Police Department

Frederick T. O'Connell, J.D.

Accounting
Internal Revenue Service

Gerard J. O'Connell, Jr., J.D.

Finance
Honeywell Information Systems

Daniel F. O'Connor, M.S.*

Information Systems
Nixdorf Computer Corp

*Denotes senior lecturer as of October 1985.

Edward J. O'Connor, B.A.
Information Systems
 Stop & Shop Co., Inc.

Aileen J. Ofer, M.A.*
English

George C. O'Grady, B.A.
Information Systems
 Digital Equipment Corp.

Joseph A. O'Keefe, M.Ed.
Law Enforcement
 Dept. of Public Safety

Sherri L. Oken, M.S.
Alt. Freshman/Language Skills
 Northeastern University

Marta Rosso O'Laughlin, M.A.
Modern Language

William J. Oldmixon, M.B.A.
Finance
 Prudential Bache Securities

Russell W. Olive, D.B.A.
Industrial Management
 Northeastern University

Ernest Oliveira, Jr., M.B.A.*
Industrial Management
 General Electric Company

Jon N. Oliver, M.A.
Therapeutic Recreation
 Creative Education Associates

Wayne J. Oliver, M.A.*
Economics
 R. J. Ridding Associates

Mary H. O'Loughlin, B.S.
Radiologic Technology
 Cardinal Cushing General Hospital

Gerald F. Olsen, M.B.A.
Accounting
 Digital Equipment Corp.

George C. Olson, M.B.A.*
Information Systems
 Union Warren Savings Bank

Kirtland H. Olson, M.A.
Technical Communications
 The Harvard Group

Ronald K. Olson, B.A.
Information Systems
 Prime Computer, Inc.

Tommasina A. Olson, M.B.A.
Management
 F. Detwiler & Co., Inc.

Jeffrey Olund, M.S.
Alt. Freshman/English

David F. O'Malley, B.S.
Technical Communications
 Harper & Shuman Financial

David S. Omar, M.Ed.*
Economics

James W. O'Neil, A.B.*
Law Enforcement
 Security Consultant

Dorothy M. Oppenheim, M.B.A.
Management
 Northeastern University

Nancy P. Orton, B.A.
English

George J. O'Shea, Jr., M.S.W.
Law Enforcement
 Division of Youth Services

Richard H. O'Shea, M.P.A.
Law Enforcement
 N.H. Dept. of Education

Gary S. Osmond, M.B.A.
Finance
 Raytheon Company

Robert E. O'Toole, M.S.W.
Health Management
 Oakdale Counseling & Training

Linda C. Ott, M.A.
Music

Susan M. Ott, Ph.D.
Psychology
 Fernald State School

Albert J. Ottariano, M.B.A.*
Economics

John B. Owen, M.A.T.
Technical Communications
 Haemonetics

Daniel J. Pagnano, Esq., J.D.
Human Resources Management
 Boston School Committee

Richard W. Paine, Ph.D.*
Psychology
 Harvard University

Elaine Palome, B.S.
Biology
 Northeastern University

Judith A. Palumbo, M.B.A.
Human Resources Management
 Massachusetts Hospital Association

Dawn M. Pandolf, A.S.
Radiologic Technology
 Faulkner Hospital

Anil M. Pandya, D.B.A.
Marketing
 Northeastern University

George Papatsores, B.S.
Alt. Freshman/Mathematics

Neeta V. Parekh, M.A.
Economics
 Northeastern University

Judith M. Pariseau, B.S.
Biology
 Northeastern University

Robert A. Parsons, M.B.A.
Management Sciences
 Northeastern University

Virginia C. Parsons, M.A.
English
 Northeastern University

S. Jack Pashoogian, B.S.
Mathematics
 Massachusetts AMC

Paul S. Paslaski, M.B.A.
Information Systems
 Digital Equipment Corp.

Herbert S. Patchell, M.A.
Philosophy/Religion

Theodore C. Patrikas, B.S.*
Management

David F. Pauling, M.A.*
Modern Language

Susan W. Pease, B.A.
Technical Communications
 Self-Employed

Joseph C. Pedula, B.S.*
Human Resources Management
 The Gillette Company

Robert A. Pelletier, B.S.
Information Systems
 Damon Corp.

Martin L. Pendleton, Jr., B.S.*
Information Systems
 Agency Management Systems

Carroll E. Pennell II, M.A.I., M.B.A.*
Real Estate
 C. W. Whittier & Brother

Sallyann Penta, M.B.A.
Accounting
 Towle Manufacturing

Timothy P. Perkins, M.A.
English
 Boston University

William K. Perkins, B.S.E.E.
Technical Communications
 Codex Corp.

Harry J. Perreault, B.S.
Information Systems
 Liberty Mutual Insurance Co.

Richard A. Perrin, M.B.A.
Information Systems
 Massachusetts General Hospital

Peter E. Perroncello, M.S.
Law Enforcement
 Norfolk County Sheriff Dept.

Eileen C. Perry, B.S.
Medical Laboratory Science
 Laboure College

Daniel Pershonok, Ph.D.*
Psychology
 Harvard Medical School

Stuart S. Peterfreund, Ph.D.
English
 Northeastern University

Daniel P. Petinge, M.B.A.
Purchasing
 Polaroid Corp.

Ausrele M. Petronis, M.Ed.*
English
 Shuman & Lubets Associates

Carol A. Pharo, M.A.
Music

Marie J. Philip, B.A.*
American Sign Language
 Northeastern University

Peter T. Philliou, Ph.D.*
Mathematics
 Wentworth Institute

Robert E. Piecewicz, M.S.
Information Systems
 American Mutual Liability Ins.

William B. Pierce, M.B.A.
Finance
 Cape Cod Community College

Benjamin E. Pike, M.B.A.*
Human Resources Management
 Massasoit Community College

Joseph G. Pike, M.A.
Health Record Administration
 The Arbour Hospital

Karen F. Pike, M.Ed.*
Art

Gerald T. Pineault, M.B.A.*
Industrial Management
 Polaroid Corp.

Robert E. Pino, B.S.
Law Enforcement
 Commonwealth of Massachusetts

*Denotes senior lecturer as of October 1985.

Garth I. Pitman, Ph.D.*

English
Trident Regional High School

Carmen S. Pizzuto, Ph.D.*

Law Enforcement
Department of Youth Services

Stephany A. Plsek, M.A.

Music
Berklee College of Music

Kevin M. Plunkett, Ph.D.

Alt. Freshman/English

Karen L. Pokross, M.Ed.

Therapeutic Recreation
Veterans Administration

Gladys M. Polansky, M.A.*

English

Terry L. Poling, M.A.

Speech Communication
Codex Corp.

John J. Pollock, A.B.

Marketing

Jonathan D. Pond, D.B.A.

Accounting

Charles J. Porfert, M.S.

Security
U.S. Environ. Protection Agency

John D. Post, Ph.D.*

History
Northeastern University

Joseph L. Potts, M.B.A.

Finance
Capital Business Group

James E. Poulos, M.A.*

English

Stephen J. Powell, M.B.A.

Finance
Instrumentation Lab., Inc.

Edward J. Powers, M.B.A.*

Industrial Management
Self-Employed

Elizabeth J. Powers, B.S.

Information Systems
Raytheon Company

Stephen J. Powers, M.S.

Information Systems
Cadesone Data

Richard A. Pozniak, B.S.

Marketing
Massachusetts Hospital Association

Michael J. Princi, J.D.

Law Enforcement
Garnick & Princi, P.C.

Alfred Prokop, M.S.

Medical Laboratory Science
Gibco Laboratories

Therese A. Provenzano, M.A.

Music

Edward V. Puopolo, J.D.*

Business Law
Puopolo & Carr, Attorneys

Carlton Purcell, M.B.A.

Information Systems
Purcell and Associates

Armand G. Qualliotine, M.A.

Music

Jane Woodbury Quinlan, M.A.

Nursing
Visiting Nurse Association

Daniel F. Quinn, M.A.

Information Systems
Northeastern University

Frank B. Quirk, M.A.

Information Systems
BayBanks Systems, Inc.

Leslie S. Radcliffe, M.A.

Technical Communications
Self-Employed

Alan S. Radding, M.S.

Journalism
Tunnel Radio

Hugh P. Rafferty, M.A.

Law Enforcement
Acme Marble and Granite Co.

James M. Ragsdale, B.A.

Journalism
The Standard Times

Malati Ramratnam, Ph.D.

English

Lewis M. Randa, M.A.

Therapeutic Recreation
Life Experience School

Carla A. Ratti, M.S.

Psychology
Northeastern University

Nathaniel C. Raymond, Ph.D.*

Sociology/Anthropology
U. Mass/Boston

Bernard R. Redgate, M.S.

Information Systems
Framingham Public Schools

Eric T. Reenstierna, B.A.

Real Estate
T. H. Reenstierna & Sons

Denis G. Regan, Esq., J.D.*

Business Law
Self-Employed

Richard M. Regan, LL.B.*

Human Resources Management
State Street Bank & Trust

William M. Reiff, Ph.D.

Chemistry
Northeastern University

Richard M. Reilly, M.A.

Human Resources Management
American Arbitration Assoc.

Barbara W. Reitz, M.B.A.

Management

Christine Rhodes, M.S.

English

Michael T. Rhodes, M.A.

Therapeutic Recreation
Braintree Hospital

Sara S. Rhodes, B.A.

Health Science

Evan B. Rich, M.B.A.

Finance
Stone & Webster Eng. Corp.

Herbert L. Richmond, C.A.G.S.

Health Management
Area II Homecare Senior Citizens

Mary E. Ridge, M.P.A.

Law Enforcement

Stephen L. Ridge, M.B.A.

Accounting
Digital Equipment Corp.

Frederick W. Riley, J.D.*

Law Enforcement
Asst. Attorney General

J. Scott Riley, B.S.*

Marketing
JSR Associates, Inc.

William J. Riley, M.Ed.

Law Enforcement
Brookline Police Department

Mordechai Rimor, M.A.

Psychology
Northeastern University

Virginia C. Risse, M.Ed.

Sociology/Anthropology
Mass. Mental Health Center

Syed S. Rizavi, M.A.

Economics
Northeastern University

Daniel J. Roberts, M.Ed.

Accounting
Northeastern University

Frank M. Robinson, Jr., C.A.G.S.

Therapeutic Recreation
Northeastern University

Holbrook C. Robinson, Ph.D.

Modern Language
Northeastern University

Raymond H. Robinson, Ph.D.

History
Northeastern University

Cephas B. Rogers, M.B.A.*

Management Sciences
Digital Equipment Corp.

William H. Rogers, M.Ed.

Transportation
Wang Laboratories

Irene L. Roman, M.Ed.

Accounting
Newton North High School

Lawrence J. Romano, M.A.*

Modern Language
Charles Stark Draper Labs

Robert N. Romanowski, M.A.*

Law Enforcement
First Security Services

Fred A. Rosenberg, Ph.D.

Biology
Northeastern University

Joel M. Rosenfeld, M.S.*

Industrial Management
Strategic Planning Institute

Norma P. Rosin, M.Ed.

Alt. Freshman/Language Skills

Richard S. Ross, M.A.

Alt. Freshman/History
Northeastern University

Peter P. Rossi, M.B.A.

Finance
Bank of Boston

Robert J. Roth, B.A.*

Law Enforcement

Arthur S. Rousmaniere, B.A.

Mathematics
Digital Equipment Corp.

Gerald R. Rubin, B.S.*

Accounting
Greene Rubin & Miller

Louis Rudzinsky, B.S.*

Human Resources Management
Louis Rudzinsky Assoc., Inc.

*Denotes senior lecturer as of October 1985.

- Nancy G. Rullo, M.B.A.
Finance
- Frederick L. Runyon, B.F.A.
Art
- Kathleen M. Russell, M.A.
Modern Language
Malden School Department
- Thomas R. Rutishauser, B.S.
Music
- Frank L. Ryan, Ph.D.*
English
Stonehill College
- P. Barry Ryan, Ph.D.
Chemistry
Harvard School of Public Health
- Charles M. Ryder, M.B.A.
Management
N.E. Mutual Life Ins. Co.
- John D. Ryder, M.B.A.*
Accounting
Tyc0 Laboratories, Inc.
- Frederick J. Rys, M.B.A.
Finance
New England Telephone Co.
- Alexander R. Rysman, Ph.D.*
Sociology/Anthropology
Romm and Company
- David J. Sack, B.S.*
Radiologic Technology
Brigham & Womens Hospital
- Thaddeus P. Sadowski, M.Ed.*
Mathematics
North Quincy High School
- Albert P. Sagansky, M.B.A.
Transportation
Self-Employed
- Charles L. Sakey, M.A.*
English
Boston Latin School
- Mary E. Salus, M.A.*
Sociology/Anthropology
Mass. Dept. of Public Welfare
- James B. Sampson, Ph.D.*
Psychology
U.S. Army Research Institute
- Richard P. Samuels, M.S.*
Mathematics
New England Telephone Co.
- Paul E. Sanders, D.B.A.
Finance
Honeywell Information Systems
- Jayant N. Sane, Ph.D.
Chemistry
The Gillette Company
- Jean M. Sannicandro, B.A.
Mathematics
Northeastern University
- Richard H. Saracusa, M.B.A.
Information Systems
Polaroid Corp.
- Ahmad Saranjampour, M.A.
Economics
Northeastern University
- Willis L. Saulnier, M.S.W.*
Human Resources Management
Creative Enterprises
- Stephen R. Savage, M.B.A.
Art
Graphic Communications, Inc.
- Eugene D. Savitt, M.S.A.
Health Science
Forsyth Dental Center
- Eunice Schatz, M.A.
Women's Career Program
Life/Work Direction
- Frank T. Schettino, M.S.
Law Enforcement
Northeastern University
- Donald S. Scheufele, Ph.D.
Chemistry
Boston Public Schools
- John J. Schickling, M.B.A.*
Accounting
Self-Employed
- William J. Schmid, B.S.
Marketing
- Mark B. Schmidt, J.D.
Real Estate
Commonwealth of Massachusetts
- Diane R. Schodlatz, Ed.D.
Psychology
Judge Baker Guidance Center
- Roy M. Schoenfeld, Esq., J.D.*
Human Resources Management
Natl. Labor Relations Board
- Harry G. Schortmann, Jr., M.B.A.
Management
- Richard Schreuer, M.A.
Sociology/Anthropology
Northeastern University
- Lucy J. Schuman, B.S.
Health Science
Randolph School
- Alan R. Schwalm, B.S.
Finance
Multibank Financial Corp.
- Daniel C. Scioletti, Jr., M.S.
Accounting
EG&G, Inc.
- Frank J. Seegraber, A.B.*
Library Science
Boston College
- Jeanne M. Segal, M.A.
Music
Self-Employed
- Harvey J. Segall, A.S.
Journalism
Harvey J. Segall Photography
- Mary K. Seipke, M.F.A.
Art
Self-Employed
- Peter M. Selig, M.A.*
Economics
Raytheon Company
- J. Thomas Selldorff, M.S.
Marketing
SCI, Inc.
- Patricia C. Selleck, B.S.
Radiologic Technology
St. Anne's Hospital
- Kathleen M. Sevigny, M.B.A.
Accounting
Bridgewater State College
- John C. Shannon, M.A.*
Economics
Suffolk University
- Robert J. Shannon, M.S.
Medical Laboratory Science
Boston VA Medical Center
- Arthur Shaw, Ed.
Alt. Freshman/Mathematics
- David M. Shaw, LL.M.
Real Estate
Law Office of David M. Shaw
- Garrett M. Sheehan, M.S.
Law Enforcement
Lowell Police Department
- Joseph R. Sheppeck, M.B.A.
Mathematics
John Hancock Life Insurance Co.
- Eliot H. Sherman, M.B.A.
Finance
Pellon Corp.
- Stephen M. Shinnick, M.P.A.
Political Science
Norwood Public Schools
- Henrietta N. Shirk, Ph.D.
Technical Communications
Software International Corp.
- Henrietta M. Shmase, B.A.
Health Record Administration
Northeastern University
- Alan R. Shneider, M.B.A.*
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Self-Employed
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English
Fisher Junior College
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Hotel & Restaurant Management
U.S. Army Research Center
- Ronald A. Shulman, M.C.E.*
Marketing
Business Communications Center
- Paul E. Shumsky, B.A.
Music
- Stephanie Shute, M.A.
English
Westwood High School
- Susan F. Sieloff, M.B.A.
Marketing
- Andrew Silverman, M.S.
Accounting
Andrew Silverman, C.P.A.
- George H. Simmons, Jr., M.A.
Economics
Dept. of Public Utilities
- Michael L. Simmons, M.P.A.
Political Science
Commonwealth of Massachusetts
- S. Murray Simons, M.B.A.*
Accounting
Greater Lynn Mental Health Ctr.
- Carolyn M. Sirois, M.A.
Alt. Freshman/English
Berklee College of Music
- Victoria R. Sirota, Ph.D.
Music
- Lloyd A. Skiffington, Ph.D.*
English
Northeastern University
- Vernon Skipper, B.S.
Management
The Boston Company

*Denotes senior lecturer as of October 1985.

Walter E. Skowronski

Finance
The Boston Company

Stephen E. Slaner, M.P.H.

Political Science
Northeastern University

Marjorie T. Slater, B.S.

Journalism
Self-Employed

Stephanie L. Small-Prasher, M.A.*

Sociology/Anthropology
Massasoit Community College

Charles Smigelski, R.D., B.S.

Health Science

Barbara A. Smith, M.A.

Psychology
Northeastern University

Donald O. Smith, Esq., J.D.

Business Law
Attorney at Law

Eileen Smith, B.S.

Alt. Freshman/Language Skills

Malcolm V. Smith, B.S.*

Mathematics
N.E. Mutual Life Ins. Co.

Mary A. Smith, M.A.

Sociology/Anthropology
Northeastern University

Peter H. Smith, M.B.A.

Accounting
Honeywell, Inc.

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Human Resources Management
Northrop Corp.

Paul E. Snoonian, Sr., Ph.D.*

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University of Lowell

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Psychology
Northeastern University

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Assabet Valley Reg. Voc. H.S.

Harold P. Sock, Ed.D.

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Gateway Counselling Services

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Women's Career Program
Mass. Bay Community College

Sulo A. Soini, M.B.A.

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Commonwealth of Massachusetts

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Northeastern University

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Ingrid Sonnichsen, M.A.

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English
Marlboro High School

Alvaro M. Sousa, B.S.

Management
N.E. Mutual Life Ins. Co.

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Northeastern University

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Law Enforcement
Northeastern University

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Stacey Associates, Inc.

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M. Thornton Health Plan, Inc.

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Northeastern University

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Stockman and Andrews, Inc.

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Raytheon Company

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U.S. Department of Labor

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District Court of Concord

Albert W. Sullivan, J.D.*

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U.S. Postal Service

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Transportation Systems Center

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Information Systems
Digital Equipment Corp.

Jeremiah J. Sullivan, Jr., J.D.

Human Resources Management
Raytheon Company

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Houghton Mifflin Company

Pamela E. Sullivan, H.S.D.

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Emerson Lane Fortuna Advertising

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The Patriot Ledger

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English
Rivier College

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Digital Equipment Corp.

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Northeastern University

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Interactive Data Corp.

Richard D. Sweeney, B.A.

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Raytheon Company

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Harvard Medical School

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U.S. Army R&D Labs

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Northeastern University

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N.E. Mutual Life Ins. Co.

Scott B. Taitel, M.B.A.

Finance
Intermetrics, Inc.

Hugh J. Talbot, M.P.A.*

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Northeastern University

Debra J. Tanen, B.F.A.

Art
Communication Graphics

Daniel E. Tanguy, M.A.

Information Systems
Massachusetts General Hospital

Sumner B. Tapper, M.Ed.*

English
Stoughton High School

*Denotes senior lecturer as of October 1985.

- Margaret Tarr, M.S.**
Nursing
Raytheon Service Company
- Theodore A. Tasis, M.A.***
English
Raytheon Service Company
- Alan M. Tattle, M.Ed.***
Information Systems
Lynn School Department
- Gloria J. Taylor, M.A.**
Sociology/Anthropology
Commonwealth of Massachusetts
- Roger B. Taylor, Esq., M.A.**
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Lesley College
- Paul H. Tedesco, Ph.D.***
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Northeastern University
- Maurice Temple, M.S.***
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Bunker Hill Community College
- Peter T. Tessicini, I.U.C., M.Ed.**
Law Enforcement
Tessicini Photography
- Norman R. Tessier, C.A.G.S.***
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Roxbury Community College
- Corey R. Tevan, D.F.A.**
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Boston College
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Information Systems
U.S. Dept. of Labor
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Lexington Public Schools
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Town of Norwood
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Digital Equipment Corp.
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Ellis Nursing Home
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Massachusetts State Police
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Westwood Public Schools
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Pine Manor College
- Alan Tosti, M.P.A.***
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Bank of Boston
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Digital Equipment Corp.
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Information Systems
Raytheon Company
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Northeastern University
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English
Rhode Island College
- David W. Tutein, M.A.***
English
Northeastern University
- Theresa H. Twombly, M.A.***
Sociology/Anthropology
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Music
- Philip A. Vaccaro, Ph.D.**
Management Sciences
Salem State College
- Paul T. Vaitkus, M.D.**
Health Science
Boston VA Medical Center
- Donat A. Valcourt, B.S.**
Information Systems
Milbrook Distributors
- Ivan B. Vandeworke, M.S.**
Chemistry
Westwood High School
- Marion M. Vannostrand, M.L.S.**
Alt. Freshman/English
- Constantine C. V. Varotsis, B.S.**
Chemistry
Northeastern University
- Marie Vartanian, M.A.**
Health Science
Leonard Morse Hospital
- Harvey Vetstein, C.A.G.S.***
English
Northeastern University
- Robert A. Vinson, M.A.***
Economics
Commonwealth of Massachusetts
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Information Systems
N. American Sales Division
- Philip M. Vitti, M.A.***
Law Enforcement
Boston Police Department
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Health Science
Northeastern University
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Northeastern University
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- Nancy L. Walden, M.S.**
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Northeastern University
- Paul M. Waldron, M.P.A.**
Law Enforcement
Massachusetts Dept. of Correction
- Ann L. Walsh, J.D.**
Health Management
Abelson Cohen & Scarpaci
- David A. Walsh, M.Ed.**
Mathematics
Westwood High School
- Martin S. Walsh, M.A.***
History
Dedham School Department
- Susan M. Walsh, B.S.**
Information Systems
Louise McNamara & Assoc., Inc.
- William F. Walsh, M.Ed.**
Marketing
Bill Walsh Associates
- Robert L. Ward, M.Ed.***
Law Enforcement
Boston Globe
- Susan E. Ward, B.A.**
American Sign Language
Northeastern University
- Nancy W. Waring, Ph.D.**
English
Northeastern University
- John M. Warren, B.S.M.E.**
Mathematics
Raytheon Company
- Philip H. Warren, Ph.D.**
Psychology
Harvard Medical School
- Lois D. Wasserman, Ph.D.***
History
Braintree Library
- Barbara B. Waterhouse, M.S.**
Health Science
Northeastern University
- John M. Watrous, M.A.**
Drama/Speech
Brandeis University
- Joan N. Wattman, B.A.**
American Sign Language
Northern Essex Community College
- Robert W. Wauhkonen, M.A.**
English
- Robert C. Webb, Ph.D.***
Psychology
Suffolk University
- Robert L. Webb, M.Ed.**
Human Resources Management
Boston Gas Company

*Denotes senior lecturer as of October 1985.

William S. Webb, M.A.*

Law Enforcement
Danvers Police Department

William J. Webster, M.B.A.

Finance
First National Bank

Judith Weilerstein, R.R.A., M.P.H.

Health Record Administration
Northeastern University

Richard S. Wein, M.A.*

Sociology/Anthropology
Winthrop Public Schools

Steven A. Weinstein, M.P.H.

Medical Laboratory Science
U. Mass. Medical Center

Sara C. Weintraub, M.A.

Speech Communication
Boston College

Edgar Weiss, B.A.

Music
Northeastern University

Arthur J. Weitzman, Ph.D.*

English
Northeastern University

Daniel A. Welch, M.A.*

Law Enforcement
Kingston Police Department

Jonathan B. Welch, Ph.D.

Finance
Northeastern University

Charles H. Wellens, M.B.A.

Accounting
Fitchburg State College

Robert L. Wells, M.A.*

Art
Northeastern University

Barry J. West, M.A.

Technical Communications

Doe West, M.S.

Therapeutic Recreation

Joseph E. Westlund, Ph.D.

English
Northeastern University

Robert L. Westwater, M.B.A.

Finance
Fred James & Co., Inc.

Charles W. White, Ph.D.*

English
Southeastern Mass. University

Dennis M. White, M.B.A.

Accounting
LISP Machine, Inc.

Paul F. White, M.A.

Sociology/Anthropology
Quincy Junior College

Sheila F. White, M.A.

Alt. Freshman/History
Northeastern University

Susan Whittaker, B.A.

Speech Communication

Joanna Whoolery, M.A.

Alt. Freshman/Language Skills

Martin D. Wiener, M.B.A.

Management
Martin D. Wiener & Assoc.

Richard C. Wildermuth, M.B.A.

Accounting
Kerivan-Lane, Inc.

Keating Wilcox, Ph.D.

Information Systems
Self-Employed

Christina Williams, M.B.A.

Accounting
Coopers & Lybrand

Donald L. Williams, M.B.A.

Management
Hewlett-Packard Corp.

Karen B. Williams, M.B.A.

Marketing
Xerox Corp.

Patricia E. Williams, M.A.

English
Pesko Assoc.

Ram Willner, D.B.A.

Finance
Northeastern University

David L. Wilmarth, Ph.D.*

Earth Science
Northeastern University

Alexander B. Wilson, M.A.*

History
Alex Wilson Associates

Richard L. Wilson, M.Ed.*

English
Northeastern University

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Health Management
Northeastern University

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Purchasing
Hewlett-Packard Corp.

Alvin G. Wint, M.B.A.

Finance

Gail S. Wintersteiner, Ph.D.*

Philosophy/Religion

Donald E. Witkoski, M.S.

Hotel & Restaurant Management
Cape Cod Community College

Joseph K. Witmer, J.D.

Political Science

Edward H. Witten, M.S.

Chemistry
Northeastern University

Matthew Witten, M.F.A.

Alt. Freshman/Language Skills

Toby A. Wolk, M.A.

Art
Toby Wolk Design Studio

Peter T. Woloschuk, M.Ed.

Journalism
Nasdlet

Peter W. Wood, M.A.

Library Science
Northeastern University

Mark S. Woodhams, M.A.

Journalism
Northeastern University

Michael L. Woodnick, M.S.*

Speech Communication
Northeastern University

Julie Woods, M.S.

Alt. Freshman/English

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Transportation
Knapp King Size Corp.

Steve Worth, Ph.D.*

Political Science
Northeastern University

William C. Wright, M.B.A.*

Management Sciences
Wright Enterprises

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Chemistry
Northeastern University

Sharon A. Wulf, Ph.D.

Management
Digital Equipment Corp.

Elizabeth J. Wyka, M.A.

Alt. Freshman/History
Northeastern University

Jun Rui Yang, B.S.

Chemistry

Neal J. Yanofsky, M.B.A.

Marketing
Au Bon Pain Company, Inc.

Susan E. Yates, M.A.

English
Northeastern University

Mustafa R. Yilmaz, D.B.A.

Management Sciences

Robert T. Yosca, M.S.

Management Sciences
Digital Equipment Corp.

Carl J. Zack, M.P.H.

Health Management
Somerville Hospital

Harold S. Zamansky, Ph.D.*

Psychology
Northeastern University

Paul J. Zambella, M.A.

Law Enforcement
Dept. of Public Safety

Dorothy M. Zanni, M.S.

Information Systems
Wang Laboratories

Walter P. Zanor, B.S.*

Mathematics
Everett High School

Alan J. Zaremba, Ph.D.

Speech Communication
Northeastern University

Arnold S. Zeitlin, M.A.

Journalism
The Associated Press

Stephen P. Zezima, J.D.

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M/A-COM., Inc.

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Attorney General's Office

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Biology

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Gardner & Preston Moss

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Accounting
Boston College

Jeffrey J. Zornitsky, M.A.

Economics
Abt Associates, Inc.

Gregory B.T. Zuch, M.A.

English
Northeastern University

*Denotes senior lecturer as of October 1985.

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Associate Dean, Administration

Paula M. Vosburgh, B.S., M.S.
Director, Health Professions and Science Programs

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Associate Dean, Director, Liberal Arts Programs

Richard L. Wilson, B.A., B.S., M.Div., Ed.M.
Coordinator, Alternative Freshman-Year Program

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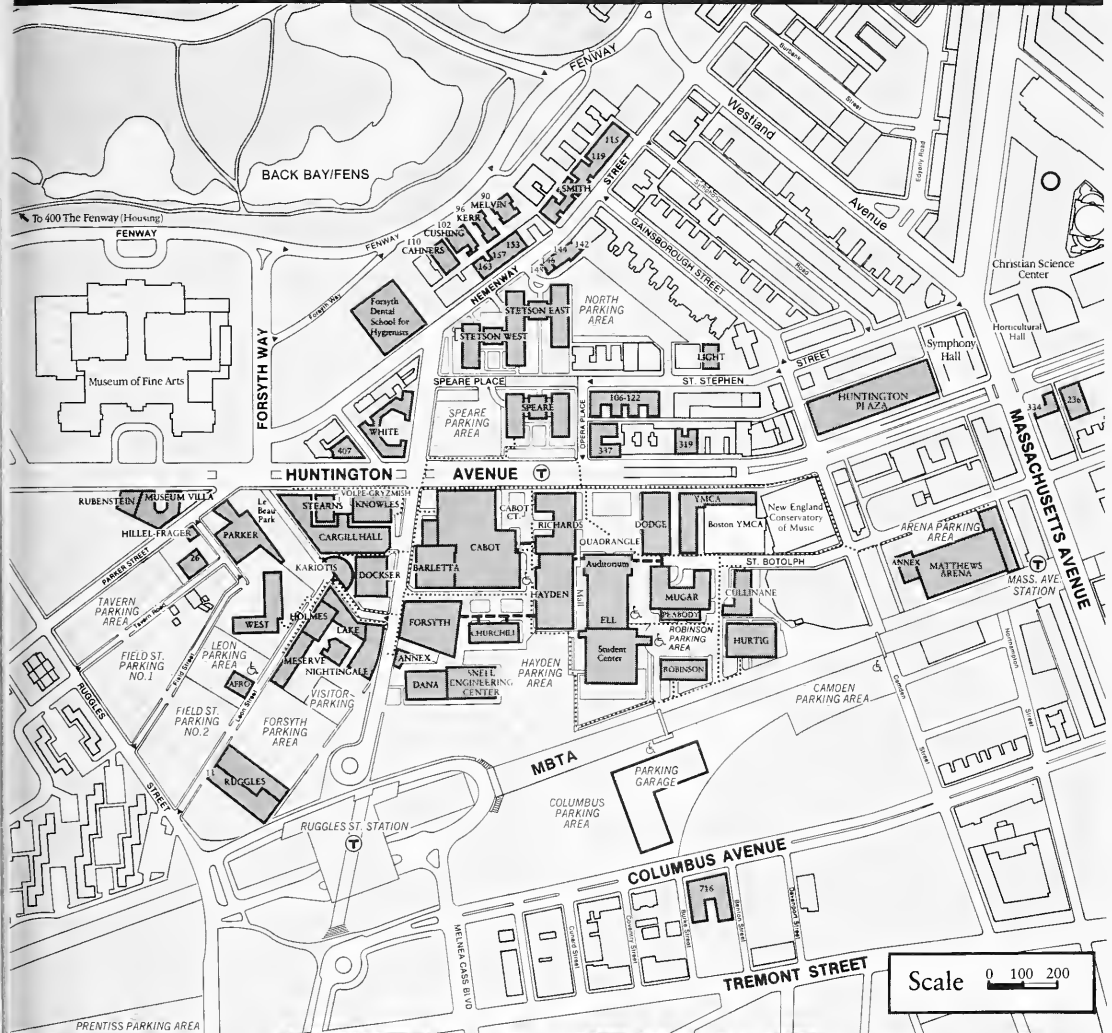
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A

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C

D

E

F

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C	Barletta Natatorium (BN)
DE	Boston YMCA (BY)
C	Cabot Physical Education Building (CB)
C	Cahners Hall (CA)
B	Cargill Hall (CG)
C	Churchill Hall (CH)
D	716 Columbus Avenue (CP)
DE	Cullinane Hall (Botolph) (CN)
C	Cushing Hall (CU)
C	Dana Research Center (DA)
B	Dockser Hall (DK)
D	Dodge Library (DG)
D	Ell Student Building (Auditorium) (EL)
D	Ell Student Center (Student Lounge) (EC)
C	Forsyth Building (FR)
C	Forsyth Building Annex (FA)
C	Hayden Hall (HA)
A	Hillel-Frager (HF)
B	Holmes Hall (HO)
F	236 Huntington Avenue (HU)
E	271 Huntington Plaza (HN)

DE	Hurtig Hall (HT)
B	Kariotis Hall (KA)
C	Kerr Hall (Faculty Center) (KA)
B	Knowles Center (Gryzmish Hall) (KG)
B	Knowles Center (Volpe Hall) (KV)
B	Lake Hall (LA)
F	334 Massachusetts Avenue
F	Matthews Arena (MA)
EF	Matthews Arena Annex (MX)
B	Meserve Hall (ME)
D	Mugar Life Science Building (Peabody Health Professions Center) (MU)
D	Nightingale Hall (NI)
B	Parker Building (PA)
D	Peabody Center
C	Richards Hall (RI)
D	Robinson Hall (RB)
AB	Ruggles (11 Leon Street) (RU)
C	Snell Engineering Center (SN)
D	122 St. Stephen Street (SS)
B	Stearns Center (ST)
A	26 Tavern Road (TA)

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and Service Buildings

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Handicapped Routes

Parking Areas

Public Buildings

Public Parks

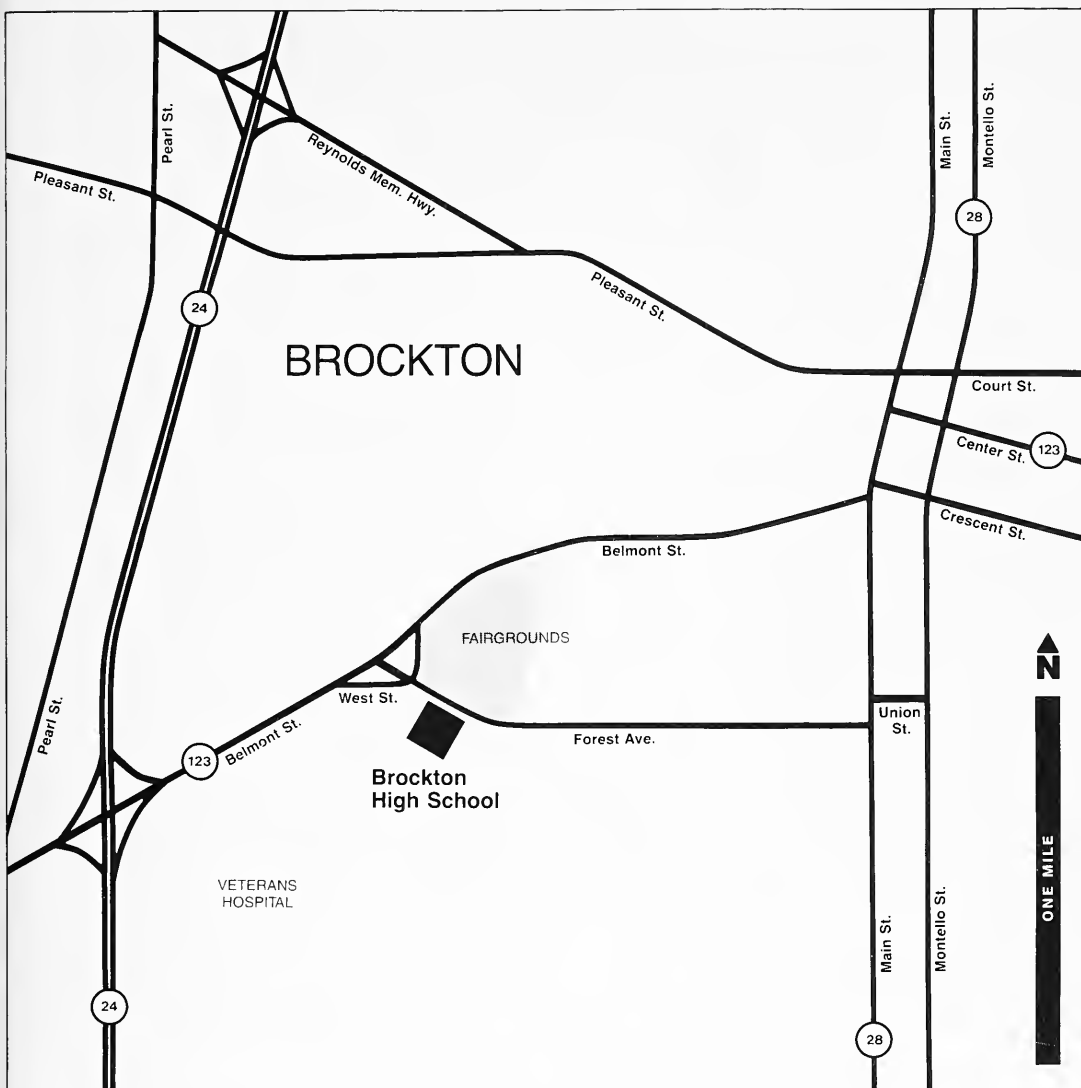
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Underground Tunnel

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Belmont High School
221 Concord Avenue



Brockton High School

470 Forest Avenue



Burlington Campus

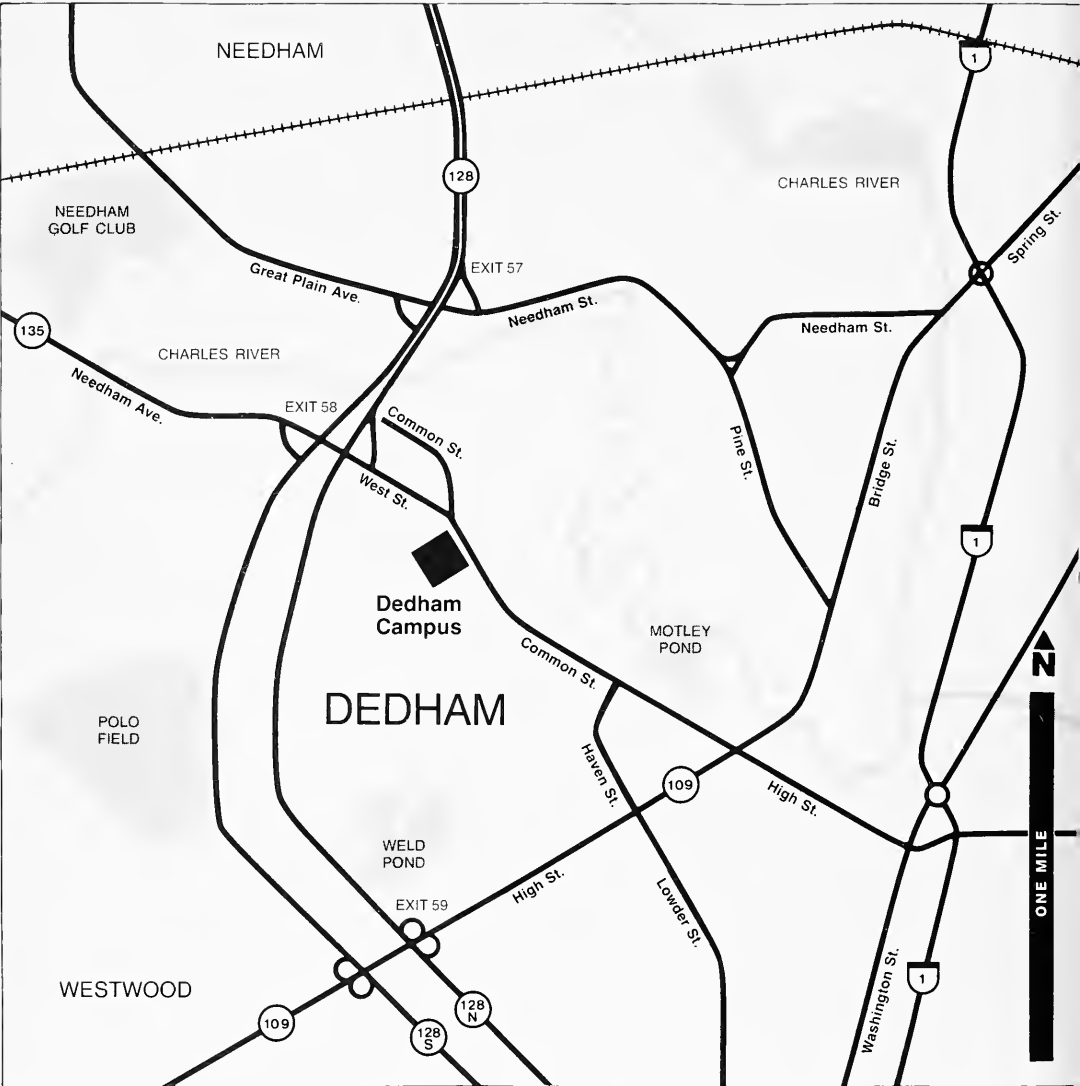
South Bedford Road

Burlington High School

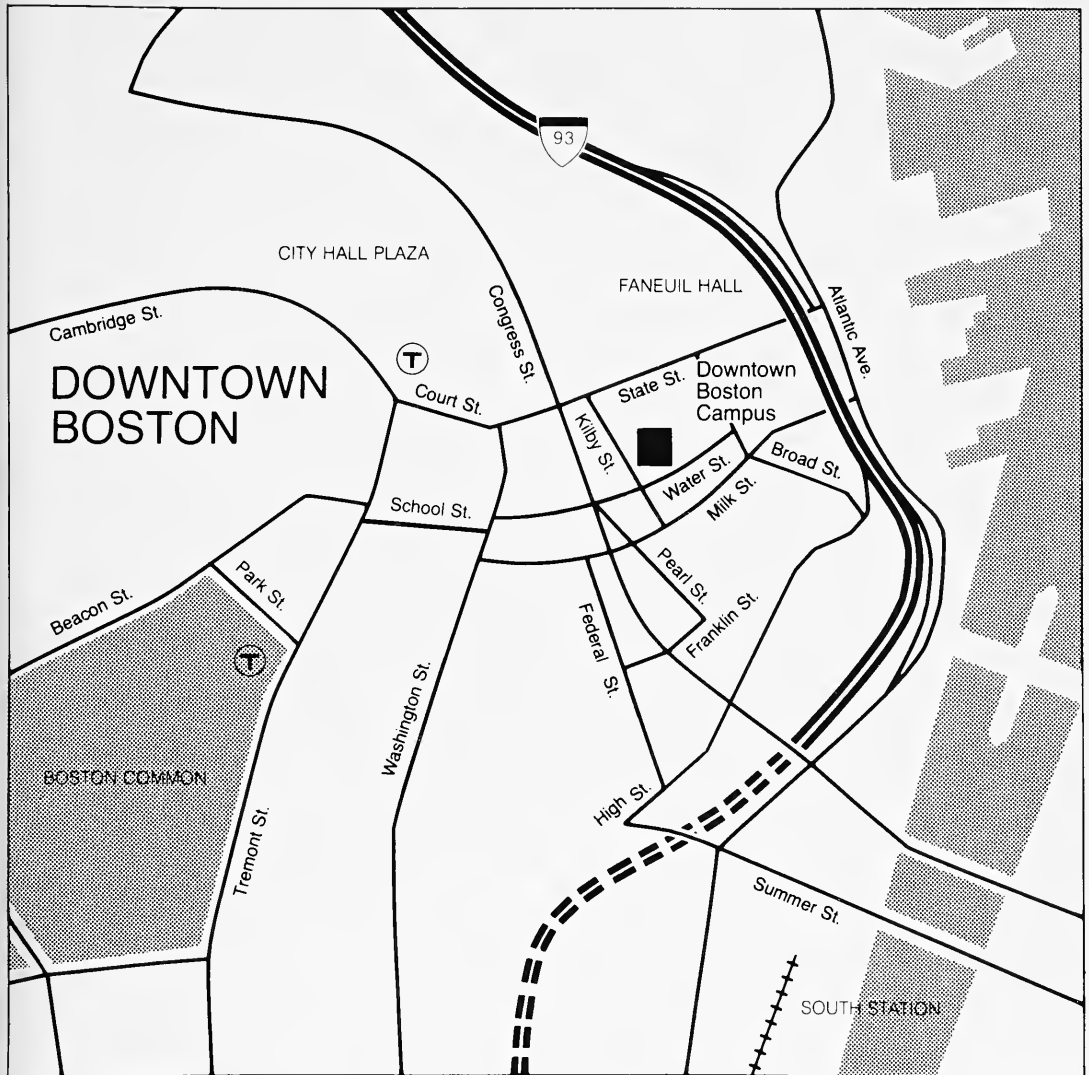
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200 Richardson Road

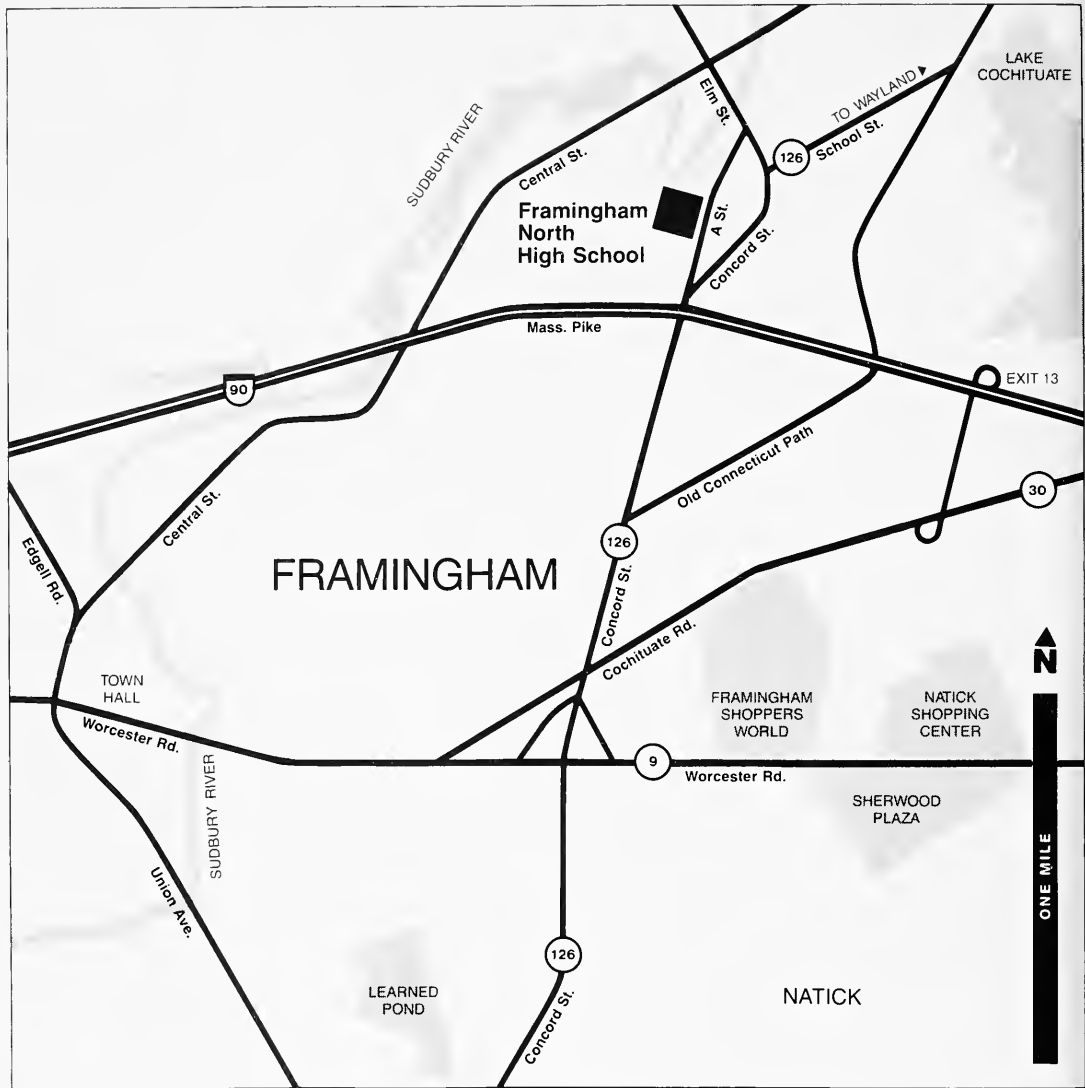


Dedham Campus
370 Common Street

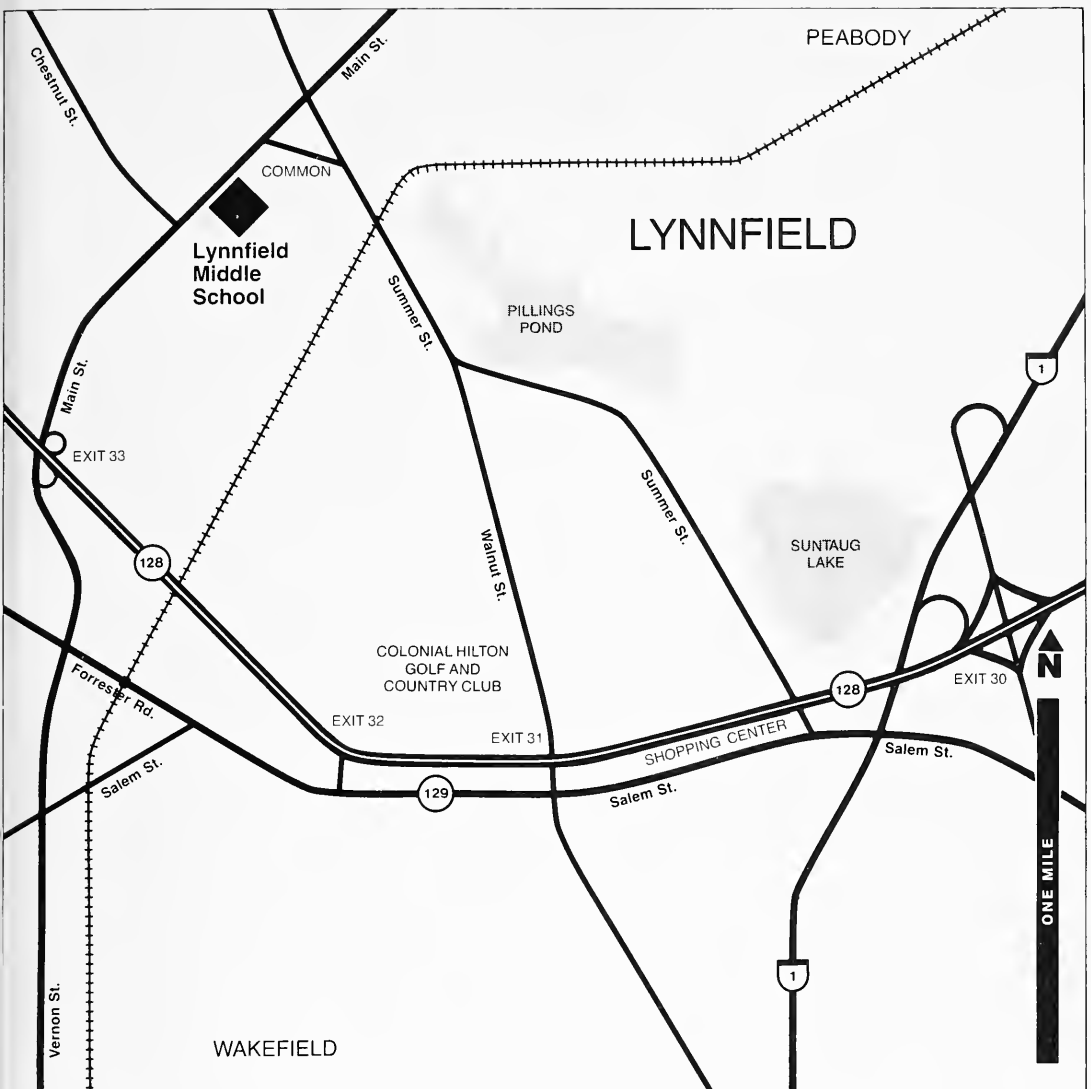


Downtown Boston Campus

5 Liberty Square



Framingham North High School
A Street

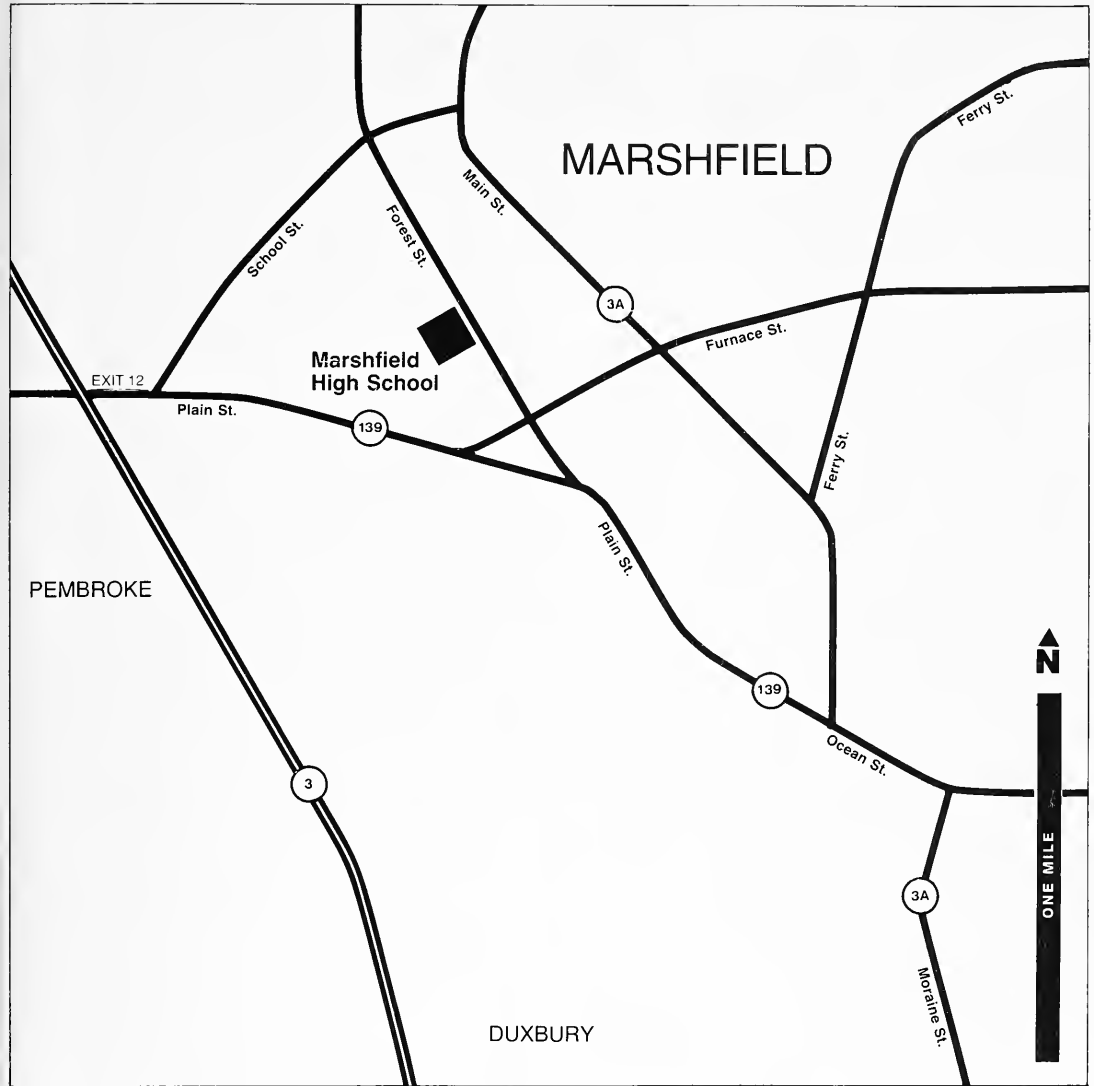


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505 Main Street



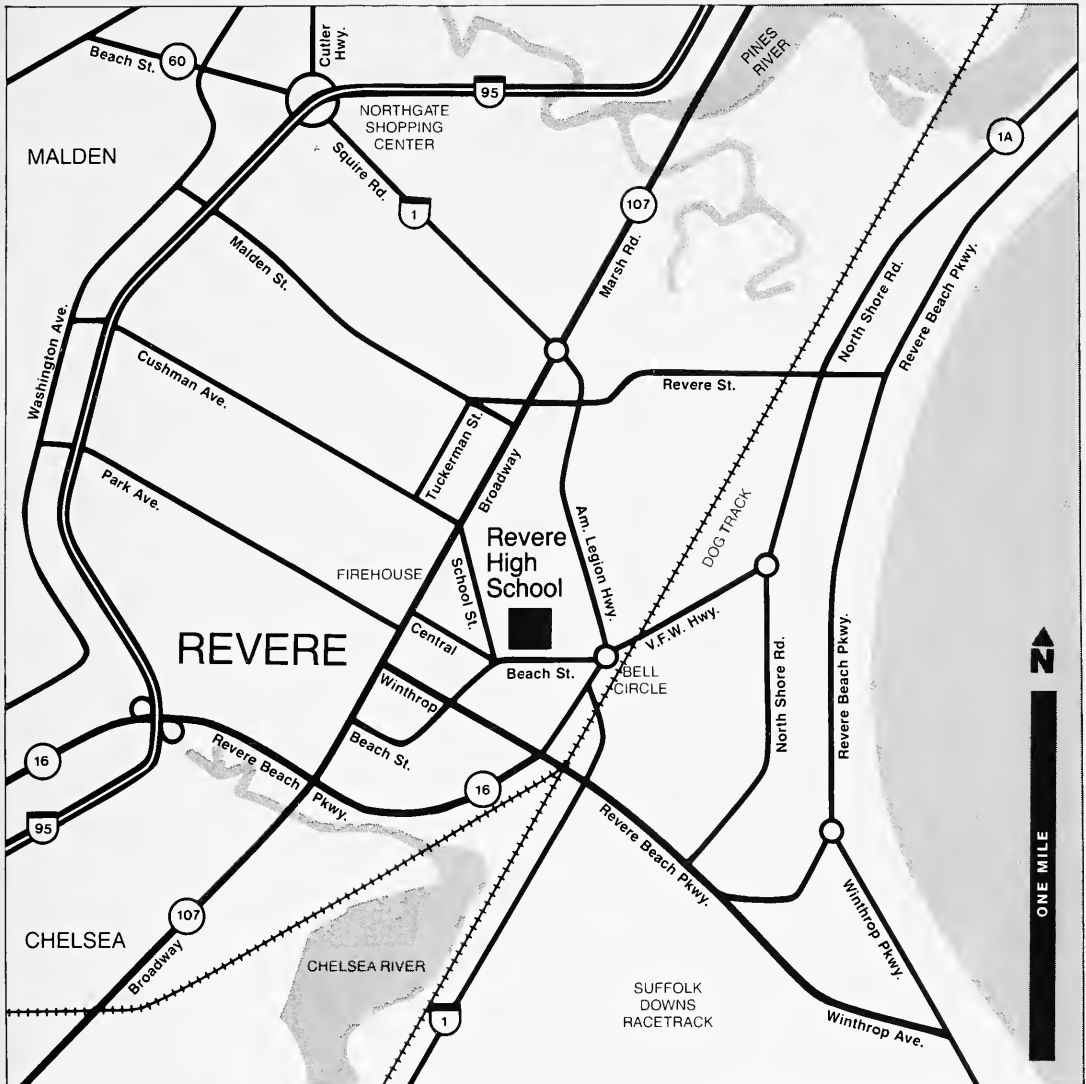
Marlboro High School
Bolton Street

**Marshfield High School**

Forest Street



Milford High School
31 West Fountain Street



Revere High School
101 School Street

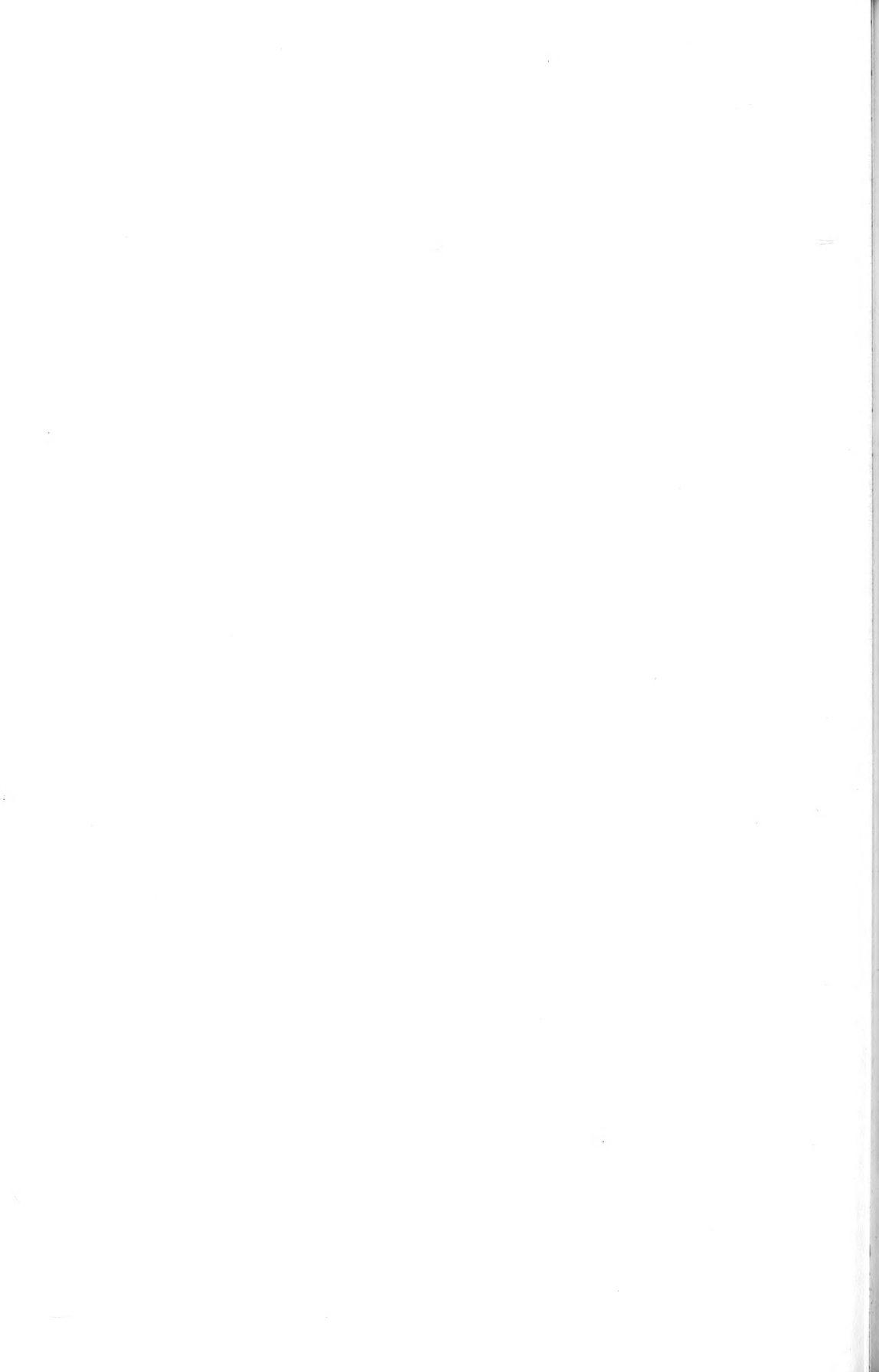


Westwood High School
200 Nahatan Street



Weymouth North High School

1051 Commercial Street



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Delivery of Services

The University assumes no liability, and hereby expressly negates the same, for failure to provide or delay in providing educational or related services or facilities or for any other failure or delay in performance arising out of or due to causes beyond the reasonable control of the University, which causes include, without limitation, power failure, fire, strikes by University employees or others, damage by the elements, and acts of public authorities. The University will, however, exert reasonable efforts, when in its judgment it is appropriate to do so, to provide comparable or substantially equivalent services, facilities, or performance, but its inability or failure to do so shall not subject it to liability.

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Northeastern will do its best to make available to you the finest education, the most stimulating atmosphere, and the most congenial conditions it can provide. But the quality and the rate of progress of your academic career is in large measure dependent upon your own abilities, commitment, and effort. This is equally true with respect to professional advancement upon completion of the degree or program in which you are enrolled. The University cannot guarantee that you will obtain or succeed at any particular job; that will depend upon your own skills, achievement, presentation, and other factors such as market conditions at that time. Similarly, in many professions and occupations there are increasing requirements imposed by federal and state statutes and regulatory agencies for certification or entry into a particular field. These may change during the period of time when you are at Northeastern, and they may vary from state to state and from country to country. While the University stands ready to help you find out about these requirements and changes, it is your responsibility to initiate the inquiry because the University has no other way of knowing what your expectations and understandings are.

In brief, the University is there to offer you educational opportunities and to assist you in finding the direction in which you want to steer your educational experience. But you are a partner in this venture with an obligation and responsibility to yourself.

Antidiscrimination Policy

Northeastern University is committed to a policy of equal opportunity to all students and employees without regard to race, color, religion, sex, sexual preference, national origin, or handicap or veteran status. The University prohibits discrimination in all matters involving admission, registration, and all official relationships with students, including evaluation of academic performance.

Equal Opportunity Employment Policy

Northeastern University is an equal opportunity employer. It is institutional policy that there shall be no discrimination against any employee or applicant for employment because of race, color, religion, sex, age, sexual preference, national origin, or handicap or veteran status.

Northeastern University also prohibits discrimination against any employee regarding upgrading, demotion or transfer, layoff or termination, rates of pay or other forms of compensation, and selection for training. In addition, the University adheres to Affirmative Action guidelines in all recruitment endeavors.

Further, Northeastern will not condone any form of sexual harassment, which is defined as the use of unwelcome sexual advances, requests for favors, and other verbal or physical conduct of a sexual nature as an explicit or implicit condition of employment, as the basis for employment decisions, or when such conduct interferes with an individual's work performance by creating an intimidating, hostile, or offensive work environment.

Inquiries concerning our equal opportunity policies may be referred to the University Title IX Coordinator/Compliance Officer for Section 504 of the Rehabilitation Act of 1973, Affirmative Action Office, 175 Richards Hall, 617-437-2133.

Office of Services for the Handicapped

The Office of Services for the Handicapped (OSH) provides a variety of support services and general assistance to all of Northeastern's disabled students and employees. The University's efforts to comply with the Rehabilitation Act of 1973 are coordinated by Ruth Bork, OSH director, 5 Ell Center, 617-437-2675.

Family Educational Rights and Privacy Act

In accordance with the Family Educational Rights and Privacy Act of 1974, Northeastern University permits its students to inspect their records wherever appropriate and to challenge specific parts of them when they feel it necessary to do so. Specific details of the law as it applies to Northeastern are printed in the Student Handbook and are distributed annually at registrations of University College and the graduate schools.

Emergency Closing of the University

Northeastern University has made arrangements to notify students, faculty, and staff by radio when it becomes necessary to cancel classes because of extremely inclement weather. AM radio stations WBZ (1030), WEEI (590), WHDH (850), WRKO (680), and FM stations WBCN (104.1), and WROR (98.5) are authorized to announce the University's decision to close. Since instructional television courses originate from live or broadcast facilities at the University, neither the classes nor the courier service operate when the University is closed.

Disclaimer

Tuition rates, all fees, rules and regulations, and courses and course content are subject to revision by the President and the Board of Trustees at any time.

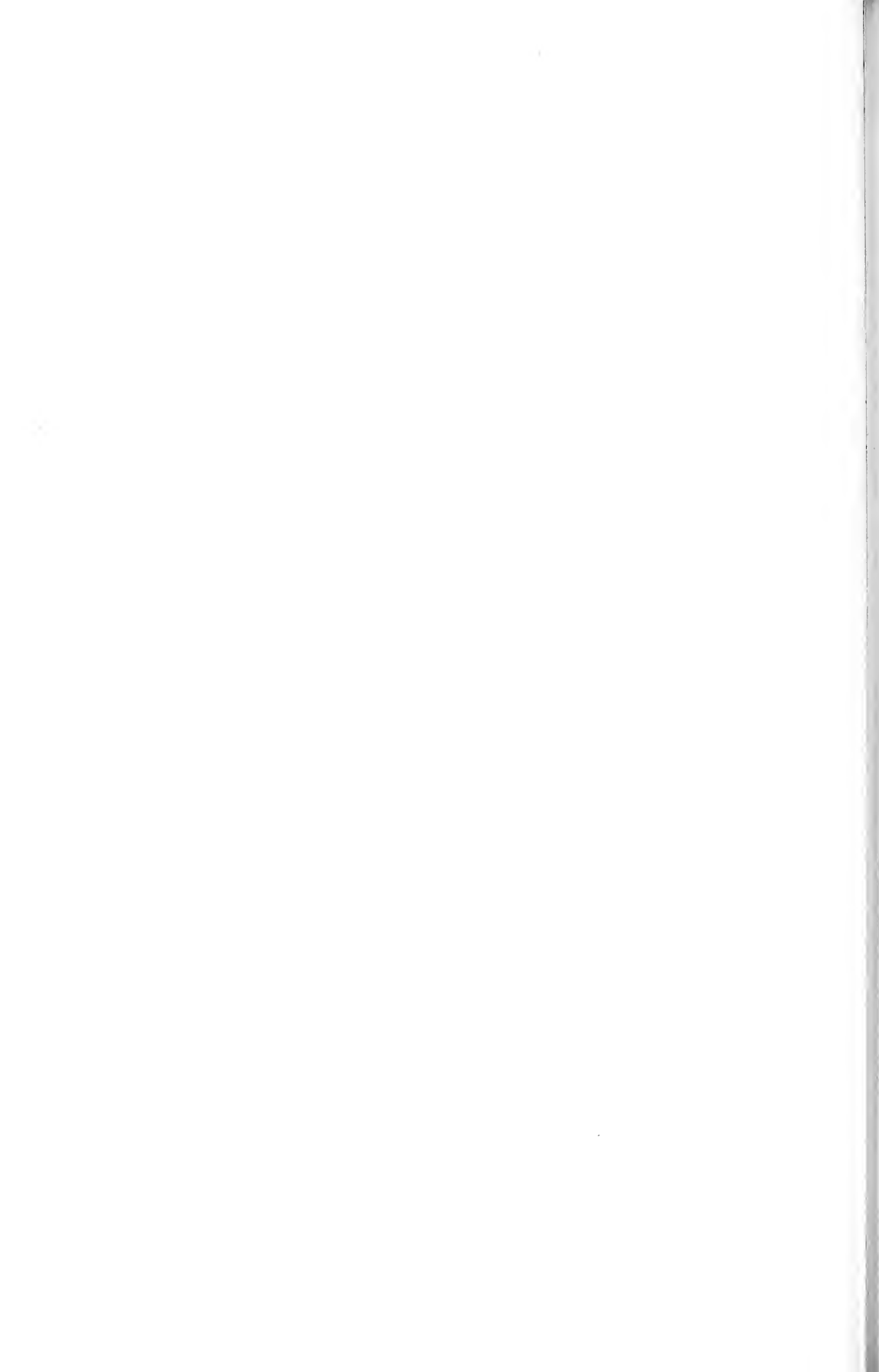
Accreditation

Northeastern University is accredited by the New England Association of Schools and Colleges, Inc., which accredits schools and colleges in the six New England states. Accreditation by the Association indicates that the institution has been carefully evaluated and found to meet standards agreed upon by qualified educators. The undergraduate business programs offered by Northeastern University are accredited by the American Assembly of Collegiate Schools of Business.

International Mission Statement

Northeastern University, a world leader in cooperative education, acknowledges the increasing interdependence among nations and therefore identifies its mission as preparing its graduates to live and work in an interdependent world. To accomplish this goal, the University actively seeks qualified students from abroad to enroll in its undergraduate and graduate programs in such numbers and with such geographic origins so as to create and foster a truly global exchange of ideas and values among students, faculty, and staff. The University also encourages all colleges to continually develop and expand course offerings to include international issues and cross-cultural aspects and supports faculty to teach and conduct research in the interrelationship among nations and peoples. In addition, the University promotes international understanding and the sharing of ideas with institutions throughout the world by virtue of its faculty and staff exchanges and its study and work-abroad programs for students.





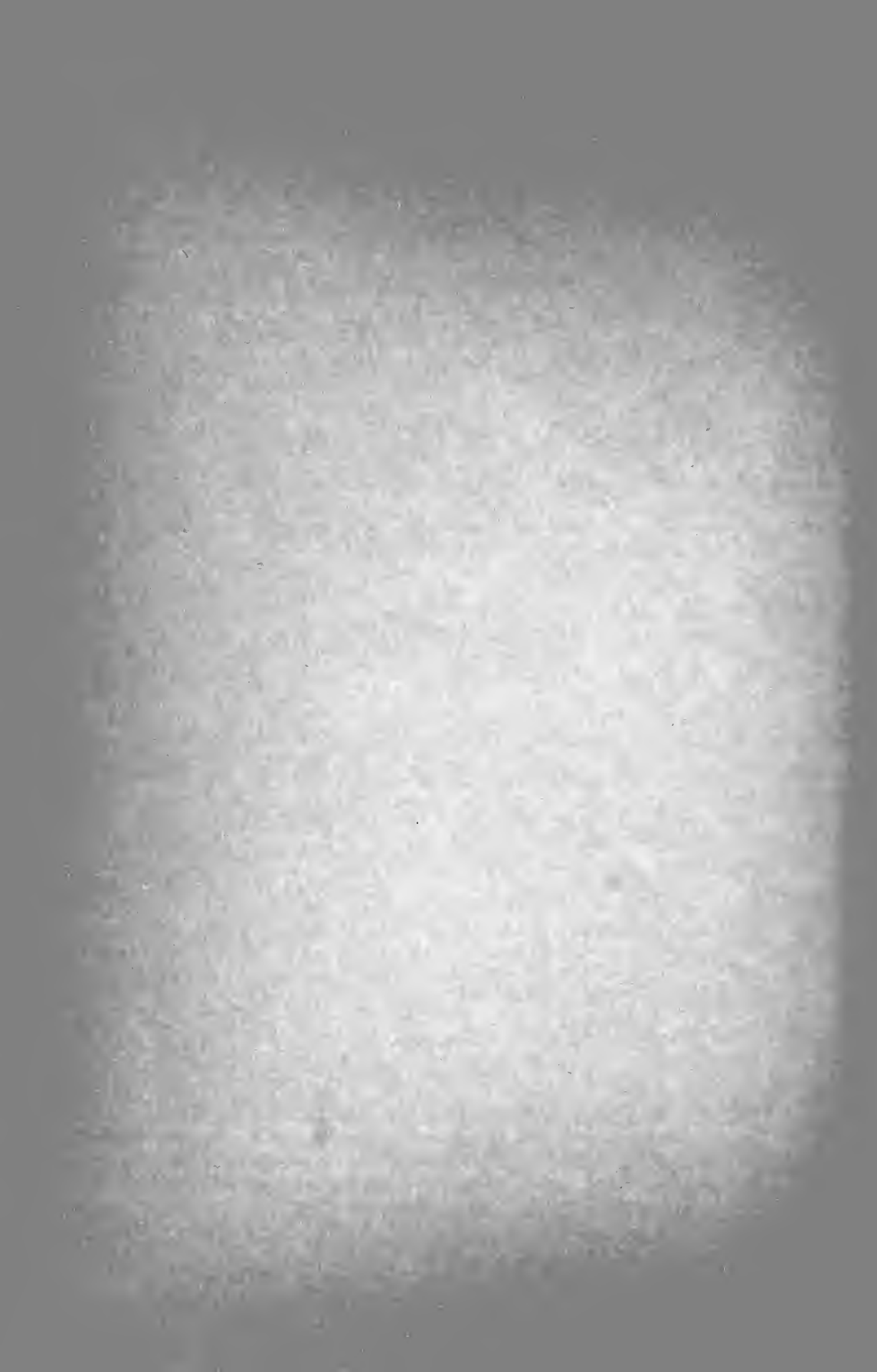




1986-1987
Northeastern University

Basic Day Colleges
Course Descriptions and Curriculum Guide





Northeastern University 1986-1987 Basic Day Colleges Course Descriptions and Curriculum Guide

College of Arts and Sciences

Boston-Bouvé College

of Human Development Professions

College of Business Administration

College of Computer Science

College of Criminal Justice

College of Engineering

School of Engineering Technology

College of Nursing

College of Pharmacy and

Allied Health Professions

University College Alternative

Freshman-Year Program

Northeastern University charges tuition for all courses taken above the normal academic load.

The University reserves the right to make changes at any time in tuition rates, all fees, rules and regulations, and courses and course content announced in this bulletin.

Antidiscrimination Policy

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Children's Center

Northeastern University operates a Children's Center in 123 Forsyth Building. The Center is academically housed in the Boston-Bouvé College of Human Development Professions' Department of Curriculum and Instruction. Children from age 2 years and 9 months to 6 years are eligible. For further information, phone 617-437-3929.

Delivery of Services

The University assumes no liability, and hereby expressly negates the same, for failure to provide or delay in providing educational or related services or facilities or for any other failure or delay in performance arising out of or due to causes beyond the reasonable control of the University, which causes include, without limitation, power failure, fire, strikes by University employees or others, damage by the elements and acts of public authorities. The University will, however, exert reasonable efforts, when in its judgment it is appropriate to do so, to provide comparable or substantially equivalent services, facilities or performance, but its inability or failure to do so shall not subject it to liability.

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College of Arts and Sciences

The College of Arts and Sciences offers degree programs in 21 majors. In most majors, two degrees are offered: the Bachelor of Arts and the Bachelor of Science. Requirements for the degree options in each major are listed on the following pages. In addition to these requirements specified by the major department, the college has established certain minimum graduation requirements for its students. They are:

Quantitative: Candidates for either the Bachelor of Arts or Bachelor of Science degree must successfully complete 176 quarter hours of credit, 32 quarter hours of which need not be Arts and Sciences courses. In addition, only four quarter hours of Physical Education and no ROTC credits may be used to meet this requirement.

Residency: Candidates must complete either 75 percent of the degree credit (132 quarter hours) or the last three full quarters (a minimum of twelve four-credit courses) at Northeastern.

Qualitative: Candidates must achieve a minimum cumulative average of 2.0 (grade of C).

Other College Degree Requirements

The Core Curriculum

The College of Arts and Sciences Core Curriculum is a set of requirements intended to provide students with the opportunity to gain the broad base of knowledge traditionally associated with a liberal arts education. The Core gives you the opportunity to develop proficiency in basic skills; to be exposed to methods of analysis in the various subjects and disciplines in the arts and humanities, the social sciences, and the natural sciences and mathematics; and to become acquainted with ideas in Western culture, differing views in non-Western cultures, and major issues and problems facing contemporary society.

The Core Curriculum consists of six categories.

Category I Basic Skills:

- Freshman English (two or three courses)
- College Mathematics
- Modern Language (required of all B.A. candidates)

For placement information on Freshman English, College Mathematics, or Modern Languages, students should consult the Dean's Office (400 Meserve Hall) or the appropriate department. Placement criteria are published in *The College of Arts and Sciences Student Guidebook* and the *Core Curriculum Guidebook*.

Category II Methods of Inquiry

Category III The Western Cultural Heritage

Category IV Alternative Cultures and Societies

Category V Theoretical Perspectives and Changes

Category VI Current Issues in Perspective

Students are required to complete courses in each category of the Core, depending upon the major and degree pursued. *The Core Curriculum Guidebook*, available in the Dean's Office, provides a thorough description of the courses required in each category, as well as a list of courses that may be used to fulfill each requirement. Roman numerals at the end of course descriptions in the following pages also indicate Core courses for each category.

*NOTE: The Core Curriculum is required of all students who entered the College as freshmen in or after the fall of 1984 and all transfer students who entered the College in or after the fall of 1985. Students who entered prior to these dates complete a Distribution Requirement (B.A. candidates only) and Freshman English. For more specific information on the Distribution Requirement, consult the Dean's Office (400 Meserve Hall) or previous editions of the *Course Description and Curriculum Guide*.

Middler Year Writing Requirement

The Middler Year Writing Requirement (MYWR) is an all-University requirement affecting freshmen who entered the University in or after the fall of 1984 and transfer students who entered the University in or after the fall of 1985.

College of Arts and Sciences strongly recommends Intermediate Writing (ENG 1350) to complete the Middler Year Writing Requirement. Students may, however, also satisfy the requirement by taking a four-credit writing course from the approved MYWR list or, with special permission through the petition process, a one-credit Writing Workshop (ENG 1340).

College Honors Program

The College of Arts and Sciences Honors Program runs Honors sections of some required or elective courses, as well as some interdisciplinary Honors seminars and minicourses. Many of these courses are equivalent to standard courses in the College for satisfaction of degree requirements. Their numbering is designed to make this apparent. For example, an Honors section of ECN 1115 will be numbered ECN 1715; PHL 1100 is PHL 1700. A full list of the offerings can be found in each quarter's booklet of course offerings, listed under the departments that offer the courses, and identified with a 1700 number.

For more information on Honors courses, how to qualify to take courses, and other aspects of the program, contact the Honors Program office at 437-2333 or drop by 213 Lake Hall.

STUDENTS SHOULD REFER TO *THE COLLEGE OF ARTS AND SCIENCES STUDENT GUIDEBOOK*, *THE CORE CURRICULUM GUIDEBOOK*, AND ANY PUBLICATIONS DISTRIBUTED BY MAJOR DEPARTMENTS FOR MORE SPECIFIC INFORMATION ABOUT THE CURRICULUM.

African-American Studies

Bachelor of Arts Bachelor of Science

A major in African-American Studies offers background for a wide range of professions calling for understanding of intergroup relations and the minority experience. Students may go on to graduate study in such areas as social work, sociology, education, law, business, history, or the humanities.

Students majoring in African-American Studies may earn either the Bachelor of Arts (B.A.) or Bachelor of Science (B.S.) degree. All majors are required to take the following set of courses.

AFR 1127 African-American Literature
AFR 1131 African-American History I
AFR 1161 Economic Issues in Minority Communities
AFR 1171 Survey of Contemporary Black Political Movements
AFR 1240 Contemporary Issues in Black Society
AFR 1248 Race Relations in America
AFR 1280 Black Psychological Identity
AFR 1300 Directed Study
AFR 1350 Research Seminar

Faculty advisers work with students to help them select one or more "concentration clusters" (as described below) in African-American Studies.

Minor in African-American Studies

A minor in African-American Studies is designed to meet the needs of students who major in other areas but have special interest in African-American Studies. To qualify for a minor, a student must earn 28 quarter-hour credits in the field, 12 of which must be from the set of courses required for majors. The remaining credits will be a concentration cluster arranged in consultation with a student's faculty adviser.

A concentration cluster is a set of four courses that focuses on a given aspect of African-American Studies. A cluster might focus on sociology-psychology, history, humanities, human service, research, or other areas related to the student's educational or career needs. Concentration clusters are arranged in consultations between the student and a faculty adviser.

Art and Architecture

Bachelor of Arts Bachelor of Science

Major in Art: ART 1100, History of Art to 1400, and ART 1101, History of Art since 1400; twelve art electives; one music elective, one theatre and dance elective; and one elective from history, psychology, or philosophy.

Studio Art Concentration. Same requirements as for the art major, except for the art electives, which are substituted by ten studio courses (ART 1124, Basic Drawing; ART 1127, Basic Painting; ART 1130, Foundations of Visual Design; ART 1132, Graphic Design I; ART 1138, Introduction to Printmaking; ART 1160,

Basic Photography I; ART 1170, Filmmaking Workshop; ART 1250, Color Theory and Practice; ART 1254, Intermediate Drawing; and ART 1261, Basic Photography II), and four art history courses (ART 1213, Modern Painting; ART 1230, History of Photography; or ART 1233, Contemporary Directions in Photography; ART 1235, History of Film; or ART 1236, The American Film; and ART 1240, History of Graphic Design).

History of Art and Architecture Concentration. Same requirements as for the art major, except for the art electives, which are substituted by eight history of art and architecture courses (ART 1200, Ancient Art and Architecture; or ART 1203, Medieval Art and Architecture; ART 1204, Renaissance Art and Architecture; ART 1210, French Painting; ART 1213, Modern Painting; ART 1220, American Sculpture and Painting; or ART 1223, American Architecture; ART 1228, Contemporary Architecture and the City; ART 1230, History of Photography; or ART 1233, Contemporary Directions in Photography; and ART 1235, History of Film; or ART 1236, The American Film; or ART 1237, Contemporary Directions in Cinema), and six studio courses (ART 1124, Basic Drawing; ART 1127, Basic Painting; ART 1130, Foundations of Visual Design; ART 1150, Introduction to Architectural Design; ART 1160, Basic Photography I; and ART 1250, Color Theory and Practice).

Architecture Concentration. In collaboration with the Boston Architectural Center and leading to a Bachelor of Science degree (a preprofessional degree). Same requirements as for the art major, except for the art electives, which are substituted by six architectural history courses (ART 1111, Introduction to Architecture; ART 1200, Ancient Art and Architecture; or ART 1203, Medieval Art and Architecture; ART 1204, Renaissance Art and Architecture; ART 1223, American Architecture; ART 1225, Technology, Architecture, and the City; and ART 1228, Contemporary Architecture and the City); four studio courses (ART 1150, Introduction to Architectural Design; ART 1124, Basic Drawing; ART 1130, Foundations of Visual Design; and ART 1132, Graphic Design I); five math/science courses (MTH 1123, Calculus; MTH 1124, Calculus; PHY 1221, Physics for Engineers I; PHY 1222, Physics for Engineers II; and one computer science elective); and five studio and four technical courses offered at the Boston Architectural Center.

Minors in Art

History of Architecture: ART 1111, History of Architecture; ART 1150, Introduction to Architectural Design; ART 1113, Architecture and the City; ART 1223, American Architecture; ART 1225, Technology, Architecture, and the City; and ART 1228, Contemporary Architecture and the City.

History of Art: ART 1200, Ancient Art and Architecture; ART 1203, Medieval Art and Architecture; ART 1204, Renaissance Art and Architecture; ART 1210, French Painting; ART 1213, Modern Painting; and ART 1220, American Sculpture and Painting.

Studio Art: ART 1124, Basic Drawing; ART 1127, Basic Painting; ART 1130, Foundations of Visual Design; ART 1132, Graphic Design I; ART 1138, Introduction to Printmaking; and ART 1243, Graphic Design II or ART 1254, Intermediate Drawing.

Photography: ART 1160, Basic Photography I; ART 1261, Basic Photography II; ART 1230, History of Photography; ART 1233, Contemporary Directions in Photography; ART 1263, Introduction to Color Photography; and ART 1363, Intermediate Photography Workshop.

General Minor: Selection of any six courses from the departmental curriculum.

Biology

Bachelor of Arts

BIO 1103, Principles of Biology I; BIO 1104, Principles of Biology II; BIO 1105, Principles of Biology III; BIO 1211, Environmental and Population Biology; BIO 1260, Genetics and Developmental Biology; BIO 1261, Cell Physiology and Biochemistry; and four advanced biology electives approved by department Advisory Committee.

MTH 1106, MTH 1107, or Calculus (one year); PHY 1201, PHY 1202, Physics for the Life Sciences I and II, PHY 1501, PHY 1502, Physics Laboratory for the Life Sciences I and II; or PHY 1231, Physics for Science Majors I; and PHY 1232, Physics for Science Majors II, or PHY 1233, Physics for Science Majors III; PHY 1531, PHY 1533, or PHY 1532, Physics Laboratory for Science Majors I and II or III; CHM 1111, General Chemistry; CHM 1122, General Chemistry II; CHM 1221, Analytical Chemistry; CHM 1264, CHM 1265, Organic Chemistry I and II.

Bachelor of Science

BIO 1103, Principles of Biology I; BIO 1104, Principles of Biology II; BIO 1105, Principles of Biology III; BIO 1211, Environmental and Population Biology; BIO 1260, Genetics and Developmental Biology; BIO 1261, Cell Physiology and Biochemistry; BIO 1490, Senior Seminar; four advanced biology electives approved by department Advisory Committee.

Calculus (one year); PHY 1231, PHY 1232, PHY 1233, Physics for Science Majors I, II, and III; PHY 1531, PHY 1532, Physics Laboratory for Science Majors I and II; or PHY 1533, Physics Laboratory for Science Majors III; CHM 1111, General Chemistry; CHM 1122, General Chemistry II; CHM 1221, Analytical Chemistry; CHM 1264, CHM 1265, Organic Chemistry I and II; two additional advanced science electives approved by the Departmental Advisory Committee.

Foreign language requirement.

Chemistry

Bachelor of Arts

CHM 1151, CHM 1152, General Chemistry for Science Majors I and II; CHM 1153, The Chemical Elements; CHM 1231, Analytical Chemistry for Chemistry Majors; CHM 1271, CHM 1272, CHM 1273, Organic Chemistry for Chemistry Majors and Chemical Engineering Students I, II, and III; CHM 1381, CHM 1382, CHM 1383, Physical Chemistry I, II, and III; CHM 1394, CHM 1395, CHM 1396, Experimental Physical Chemistry I, II, and III; CHM 1431, Instrumental Analysis.

MTH 1143, MTH 1144, MTH 1145, Calculus I, II, and III; PHY 1231, PHY 1232, PHY 1233, Physics for Science Majors I, II, and III; PHY 1532, PHY 1533, Physics Laboratory for Science Majors II and III.

Bachelor of Science

CHM 1151, CHM 1152, General Chemistry for Science Majors I and II; CHM 1153, The Chemical Elements; CHM 1231, Analytical Chemistry for Chemistry Majors; CHM 1271, CHM 1272, CHM 1273, Organic Chemistry for Chemistry Majors and Chemical Engineering Students I, II, and III; CHM 1381, CHM 1382, CHM 1383, Physical Chemistry I, II, and III; CHM 1394, CHM 1395, CHM 1396, Experimental Physical Chemistry I, II, and III; CHM 1431, Instrumental Analysis; CHM 1441, Inorganic Chemistry; CHM 1461, Identification of Organic Compounds; two advanced science or mathematics electives; one advanced laboratory.

MTH 1143, MTH 1144, MTH 1145, Calculus I, II, and III; MTH 1243, Calculus and Linear Methods I, or MTH 1223, Calculus. MTH 1245, Differential Equations and Linear Methods I; or MTH 1225, Mathematical Analysis; PHY 1231, PHY 1232, PHY 1233, Physics for Science Majors I, II, and III; PHY 1532, PHY 1533, Physics Laboratory for Science Majors II and III.

Minor in Chemistry

After a general chemistry sequence, CHM 1231, Analytical Chemistry for Chemistry Majors; CHM 1271, CHM 1272, CHM 1273, Organic Chemistry I, II, and III for Chemistry Majors and Chemical Engineering Students; CHM 1381, CHM 1382, Physical Chemistry I, II. CHM 1394, CHM 1395, Experimental Physical Chemistry I and II.

Economics

Bachelor of Arts

ECN 1115, Principles of Macroeconomics; ECN 1116, Principles of Microeconomics; ECN 1250, ECN 1251, Statistics I and II; ECN 1216, Microeconomic Theory; ECN 1215, Macroeconomic Theory; six economics electives.

MTH 1106, MTH 1107, Fundamentals of Mathematics I and II; four social science electives other than economics.

Bachelor of Science

ECN 1115, Principles of Macroeconomics; ECN 1116, Principles of Microeconomics; ECN 1250, ECN 1251, Statistics I and II; ECN 1216, Microeconomic Theory; ECN 1215, Macroeconomic Theory; ECN 1350, Introduction to Econometrics; or ECN 1351, Problems in Economic Research; ten economics electives.

MTH 1106, MTH 1107, Fundamentals of Mathematics I and II; four social science electives other than economics.

Minor in Economics

ECN 1115, Principles of Macroeconomics; ECN 1116, Principles of Microeconomics; ECN 1216, Microeconomic Theory; ECN 1215, Macroeconomic Theory; four electives in economics. Electives to be selected with the advice of a department adviser. Any course taken outside the Department of Economics to satisfy these economics elective requirements must be approved by a faculty adviser in the Department.

English

Bachelor of Arts

ENG 1126, Backgrounds to English and American Literature; ENG 1120 and 1121, Survey of English Literature I and II; ENG 1123 and 1124, Survey of American Literature I and II; ENG 1307, Approaches to Literature; two period courses; three major figure courses (one must be Shakespeare); one language or writing course; one junior-senior seminar; three electives in literary studies, literary periods, or language and writing.

Bachelor of Science

ENG 1126, Backgrounds to English and American Literature; ENG 1120 and 1121, Survey of English Literature I and II; ENG 1123 and 1124, Survey of American Literature I and II; ENG 1307, Approaches to Literature; two period courses; three major figure courses (one must be Shakespeare); one language or writing course; one junior-senior seminar; three electives in literary studies, literary periods, or language and writing.

Minor in Literature

Six courses required. Two survey courses required from the following: ENG 1120, Survey of English Literature I; ENG 1121, Survey of English Literature II; ENG 1123, Survey of American Literature I; ENG 1124, Survey of American Literature II. One course from each of the following categories: (a) literary periods; (b) major figures; and (c) language and writing. One elective from (a), (b), (c), or literary studies.

Minor in Writing

Six courses required. Two courses from: ENG 1350, Intermediate Writing; ENG 1351, Creative Writing; ENG 1125, Technical Writing I. Four courses from: ENG 1370, Technical Writing II; ENG 1371, Writing for the Computer Industry; ENG 1380, Writing for the Professions: Health Services; ENG 1352, Advanced Writing; ENG 1381, Writing for the Professions: Business Administration; ENG 1382, Writing for the Professions: Criminal Justice; ENG 1357, Poetry Workshop; ENG 1358, Fiction Workshop; ENG 1362, Publication Arts; ENG 1359, Nonfiction Workshop; ENG 1361, The Writing Process; ENG 1360, Topics in Writing: Reading and Writing Nonfiction.

Minor in Linguistics

See Interdisciplinary Minors.

Minor in Technical Communications

See Interdisciplinary Minors.

Geology

Bachelor of Arts

GEO 1212, Physical Geology; GEO 1213, Physical Geology Laboratory; GEO 1222, Historical Geology; GEO 1223, Historical Geology Laboratory; GEO 1310, Descriptive Mineralogy; GEO 1311, Optical Crystallography; GEO 1312, Petrography; GEO 1418, Structural Geology; six geology electives.

MTH 1106, MTH 1107, Fundamentals of Mathematics I and II; or MTH 1107, MTH 1108, Calculus I and II; PHY 1231, Physics for Science Majors; or PHY 1201, Physics for the Life Sciences I; CHM 1111, General Chemistry I; CHM 1122, General Chemistry II.

Bachelor of Science

GEO 1212, Physical Geology; GEO 1213, Physical Geology Laboratory; GEO 1222, Historical Geology; GEO 1223, Historical Geology Laboratory; GEO 1305, Rock Identification Laboratory; GEO 1310, Descriptive Mineralogy; GEO 1311, Optical Crystallography; GEO 1312, Petrography. GEO 1418, Structural Geology; eight geology electives.

MTH 1107, MTH 1108, Calculus I and II, or MTH 1123, MTH 1124, MTH 1125, Calculus I, II, and III; PHY 1231, PHY 1232, PHY 1233, Physics for Science Majors I, II, and III; CHM 1111, CHM 1122; or CHM 1151, CHM 1152, General Chemistry I and II; CHM 1231 or CHM 1221, Analytical Chemistry; or CHM 1391, Physical Chemistry; or GEO 1412, Geochemistry; two approved additional science electives.

Minor in Geology

GEO 1212, Physical Geology; GEO 1222, Historical Geology; GEO 1310, Descriptive Mineralogy; plus two of the following one-credit laboratories; GEO 1213, Physical Geology Laboratory; GEO 1223, Historical Geology Laboratory; GEO 1305, Rock Identification Laboratory; plus four geology electives (GEO 1412 or higher number) chosen with the approval of the Earth Science Department.

History

Bachelor of Arts

HST 1101 and HST 1102, Western Civilization I and II; HST 1201 and HST 1202, United States to 1877 and United States since 1877; HST 1241, The Historian's Craft; HST 1805, Approaches to History; nine history electives distributed as follows: two courses in Group A (ancient, medieval, early modern Europe); two courses in Group B (modern Europe); two courses in Group C (America); two courses in Group D (other regions); one course in any of the above groups.

Recommended: Courses in the related social sciences.

Bachelor of Science

HST 1101 and HST 1102, Western Civilization I and II; HST 1201 and HST 1202, United States to 1877 and United States since 1877; HST 1241, The Historian's Craft; HST 1251, Social Science Methodology; HST 1805, Approaches to History; eleven history electives distributed as follows: two courses in Group A (ancient, medieval, and early modern Europe); two courses in Group B (modern Europe); two courses in Group C (America); two courses in Group D (other regions); three courses in any of the above groups.

Either a social science minor that requires some theoretical or methodological courses; or a social science minor without theoretical or methodological courses (in which case students must take either PSY 1211, SOC 1320, or ECN 1250 or another acceptable statistics course); or a coherent program in science and/or social science composed of six courses (in which case students should consult with their departmental adviser and have the approval of the Undergraduate Committee in the Department of History); or a recognized minor in another college of the University (e.g. Business Administration).

A computer course approved by the departmental adviser.

Minor in History

Eight courses in history, two of which must be selected from the following: HST 1101, Western Civilization I; HST 1102, Western Civilization II; HST 1201, U.S. to 1877; HST 1202, U.S. since 1877.

Human Services

Bachelor of Arts

Prerequisite Courses: SOC 1100, Introduction to Sociology; or ED 1100, Education and Social Science; ED 1302, The Human Services Professions; PSY 1111 and PSY 1112, Foundations of Psychology I and II; or ED 1102 and ED 1103, Human Development and Learning I and II; POL 1111, Introduction to American Government; ECN 1115 or ECN 1116, Principles of Macroeconomics or Principles of Microeconomics; or equivalent.

Core Courses: PSY 1211, Statistics in Behavioral Science I; or SOC 1320, Introduction to Statistical Analysis or ED 1307, Introduction to Educational Statistics; PSY 1511, Experimental Design in Psychology; or SOC 1321, Research Methods I, or SOC 1324, Human Services Research and Evaluation; SOC 1240, Sociology of Human Services Organizations; PSY 1272, Personality I; PSY 1373, Abnormal Psychology I; ED 1300, Education and Psychosocial Development; SPC 1338, Group Discussion; or ED 1301, Educational Applications of Social Psychology or ED 1317, Seminar in Group Process; CRS 1310, Intervention Strategies; INT 1333, Senior Seminar.

Specified Electives (any three courses): SOC 1245, Sociology of Poverty; SOC 1250, The Sociology of Private and Public Assistance; POL 1308, The Politics of Poverty; ECN 1315, Income Inequalities and Discrimination; AFR 1240, Contemporary Issues in Black Society; AFR 1150, Black Cultural Development in the United States; AFR 1243, Minorities, Ethnicity, and Human Rights; ED 1310, Class and Ethnic Relations in Education; CRS 1200, Introduction to Special Education.

Specializations (five courses in any one specialization): Specializations are individually constructed by the student and his/her adviser. Alternatives are grouped in three broad clusters: Clinical, Community, and Administration.

Fieldwork: INT 1330, Human Services Fieldwork I; INT 1331, Human Services Fieldwork II.

Specialization in Deaf Studies

Prerequisite Courses, Core Courses, and Fieldwork Courses follow the standard Human Services major.

Three Specified Electives selected from the list above, including the following alternatives: PSY 1271, or SOC 1135, Social Psychology; SOA 1135, Language and Culture; SOA 1101, Culture, Meaning, and Everyday Experience; ENG 1118, Introduction to Language; PSY 1263, Body Language; SOC 1140, Sociology of Prejudice; SPC 1232, Male and Female Communications; CRS 1313, Introduction to Counseling.

Deaf Studies Specialization: ASL 1101, American Sign Language I; ASL 1102, American Sign Language II; ASL 1201, Intermediate American Sign Language I; ASL 1202, Intermediate American Sign Language II; *and five courses selected from:* ASL 1211, Deaf Culture; ASL 1212, Deaf History; PSY 1363, American Sign Language Linguistics; PSY 1261, Bilingualism; SLA 1101, Introduction to Speech and Hearing; ASL 1401, American Sign Language Literature.

Interdisciplinary Studies

Independent Major

An eligible student may petition the College Curriculum Committee to meet requirements for the B.A. degree in an Independent major. Eligibility, procedures, and requirements must be discussed in advance with an adviser in the Dean's Office. No student may be considered an Independent major until a curriculum proposal has been submitted to, and approved by, the Curriculum Committee.

Minor in Asian Studies

The minor program allows students the choice of concentration in Middle East Studies or East Asian Studies (China, Japan, Korea). In each concentration there are three core courses and four electives.

Middle Eastern Studies Concentration: Core courses: HST 1612, The Modern Middle East; POL 1345, Government and Politics in the Middle East; and PHL 1280,

Islam. Choose four of the following electives: SOC, Social Change; POL 1384, Arab-Israeli Conflict; HST 1652, Islam Resurgent; HST 1613, Contemporary Middle East; HST 1614, The Middle East Today in Fact, Fiction, Film; MUS 1182, Music of the Middle East; ECN 1332, Economic History of Less Developed Countries.

East Asian Studies Concentration: SOC 1432, People and Culture of China; POL 1332, Government and Politics of Japan; PHL 1215, Eastern Religions. Choose four electives: SOC 1104, Contemporary Japanese Culture and Society; POL 1371, Government and Politics of China; POL 1372, China's Foreign Relations; HST 1641, Recent Leaders of Asia; HST 1633, China Since 1850; HST 1637, Japan Since 1850; HST 1634, Communist China; PHL 1255, Indian Philosophy; PHL 1250, Chinese Philosophy; PHL 1130, Ethics: East and West; PHL 1293, Mysticism; East and West; HST 1670, Introduction to Third World History. For both concentrations, it is strongly recommended that students pursue language training to gain proficiency in an Asian language. Chinese courses are currently taught in the Basic College program.

Minor in Film Studies

The Film Studies minor permits students to acquire skills in the analysis of one of the major art forms and cultural influences of the twentieth century and to gain critical tools that can be used to study the relationships between film and society, history, aesthetics, philosophy, and psychoanalysis. Students take eight of the following courses, including two required courses, a filmmaking requirement, and five electives. Due to their interdisciplinary nature, many courses are listed with other departments.

Required courses: LNF 1550, Introductory Film Analysis; LNF 1551, Film Theory. Filmmaking requirement: One of the following: ART 1170, Filmmaking Workshop; ART 1171, Animation Workshop; or SPC 1450, Television I.

Electives: ART 1233, Contemporary Directions in Cinema; ART 1235, History of Film; ART 1236, The American Film; ART 1238, Documentary Film; ART 1800, Directed Study; ENG 1288, Film and Text; ENG 1289, Shakespeare on Film; ENG 1290, Topics in Film (may not be counted more than twice); ENG 1291, Popular Culture; ENG 1294, Modern Film; INT 1320, Exploring the Humanities through Film; HST 1494, History and Film; LNF 1321, French Film Masterpieces; LNF 1560, Film and Psychoanalysis; LNS 1550, Spanish Film Masterpieces.

For more information, contact the Film Studies Coordinator, Professor Inez Hedges, at 437-5163.

Minor in Linguistics

A total of six courses are required. ENG 1118, Introduction to Language and Linguistics. Choose one course from: ENG 1401, Introduction to Syntax; PSY 1262, Language and Cognition; PSY 1361, Introduction to Phonetics. Choose four courses from: ENG 1119, History of the English Language; *ENG 1401, Introduction to Syntax; ENG 1402, Grammars of English; ENG 1407, Introduction to Semantics; ENG 1408, Topics in Linguistics; ENG 1690, Junior-Senior Seminar (in Stylistics); LNL 1235 Applied Linguistics; LNL 1236, Applied Linguistics II; PHL 1215, Symbolic Logic; PHL 1440, Philosophy of Language; PSY 1261, Bilingualism; *PSY 1262, Language and Cognition; PSY 1263, Body Language; *PSY 1361, Introduction to Phonetics; PSY 1362, Child Language; PSY 1363, Linguistics of American Sign Language; PSY 1364 Cognition; PSY 1365, Language and the Brain; PSY 1562, Lab in Psycholinguistics; PSY 1661, Seminar in Psycholinguistics; PSY 1662, Seminar in Cognition; SOA 1135, Language and Culture.

*If not already taken.

Minor in Marine Studies

Revised requirements are available at the Marine Science and Maritime Studies Center.

Minor in Media Studies

To qualify for a minor in Media Studies, the student must complete a minimum of eight courses as follows: three required courses: SPC 1250, Introduction to Mass Communication; HST 1575, History of Media in America; and SPC 1300, Introduction to Communication Theory or SPC 1317, Theories of Audience Behavior; or INT 1320, Exploring Humanities through Film; and five elective courses from the two categories Media Production and Media Application (at least two electives in each category). Individual student programs will be developed in

consultation with faculty advisers. Interested students should contact Dr. Zaremba (Department of Speech Communication) for information on program development and elective choices.

Minor in Sport and Society

A minor in Sport and Society is being developed. Consult Alan Klein in the Sociology Department (437-2686) for more information.

Minor in Technical Communication

Technical communication combines written, oral, and graphics skills with a background in science or technology. The minor in Technical Communication gives students the opportunity to prepare themselves for careers as technical writers, or for careers in which technical communication is a significant part of their jobs. Students in English or other liberal arts studies may elect the minor, as may students from a variety of technological or scientific fields. A student does not have to be enrolled in the College of Arts and Sciences to declare the minor.

Eight courses are required. Students must choose courses from the following areas:

Writing Courses

ENG 1125 Technical Communication I (Required)

Choose two of the following:

ENG 1370 Technical Writing II

ENG 1371 Writing for the Computer Industry

ENG 1380 Writing for the Professions: Health Services

ENG 1352 Advanced Writing

ENG 1381 Writing for the Professions: Business Administration

One of these courses must be ENG 1370 or 1371.

Speech Communication Courses

Choose one:

SPC 1116 Business and Professional Speaking

SPC 1331 Interpersonal Communication II

Graphic Arts Courses

JRN 1440 Design and Graphics

You may take an equivalent in another department or college.

Computer Programming

COM 1101 Introduction to Computers I (Required)

Computer Science and Science Courses

Choose two courses. We strongly recommend a sequence of two in the same area.

IIS 1125 COBOL Programming I

GE 1106 FORTRAN Programming

BIO 1130 General Biology

BIO 1131 Animal Biology

CHM 1111 General Chemistry

CHM 1112 General Chemistry

GEO 1212 Physical Geology

GEO 1213 Historical Geology

PHY 1231 Physics for Science Majors I

PHY 1232 Physics for Science Majors II

PHY 1233 Physics for Science Majors III

Minor in Urban Studies

Students must take 28 quarter hours (seven courses) as follows: *Required Courses (three)*: SOC 1147, Urban Society; POL 1324, Urban Politics; ECN 1320, Urban Economics. One course from each of the following four areas: *Urban Problems and Policies* (SOC 1346, Suburb and Metropolis'; POL 1318, State and Local Government; ECN 1321, Urban Economic Problems and Policies), *Urban Humanities* (HST 1391, European Urban History to 1850; HST 1543, American Urban History; ENG 1608, The City in Literature), *Urban Form and Design* (ART 1113, Architecture and the City; ART 1225, Technology, Architecture, and the City; ART 1150, Introduction to Architectural Design), *African-American Studies* (AFR 1261, Economics of Urban Poverty; AFR 1275, Urban Political Issues; AFR 1475, Public Policy Analysis).

To obtain credit for the minor, students must file a petition form with the College of Arts and Sciences at the time of senior clearance. Petition forms may be obtained

at the College office or from advisers for the program. Interested students should confer with an adviser as soon as possible. Advisers are: Professor Robert Gilbert, Political Science (303 ME, ext. 2796); Professor Ronald McAllister, Sociology/Anthropology (500 HO, ext. 2868); Professor Clay McShane, History (203 ME, ext. 2660); Professor Peter Serenyl, Art (401 UO, ext. 2346); Professor Gregory Wassell, Economics (317 LA, ext. 2196).

Minor in Women's Studies

Students take nine of the following courses, including four required interdisciplinary courses, and five electives.

Required Interdisciplinary Courses: INT 1150, Introduction to Women's Studies; SOC 1302, Feminist Perspectives on Society; INT 1850, Seminar in Research I; INT 1851, Seminar in Research II.

Elective Courses: SOA 1160, Sex, Sex Roles, and the Family; SOC 1102, Evolution and Society; SOC 1155, Sociology of the Family; SOC 1160, Sex and Gender Roles; SOC 1177, Social Roles in Business; SOC 1178, Women Working; SOC 1217, Women, Health, and Social Change; SOC 3155, The Family; SOC 3160, Men, Women, and Social Change; HST 1472, Family in European History; HST 1392, Women in European History; HST 1473, Women in Modern Europe; HST 1554, The American Women; HST 1553, Family in American History; HST 3399, Approaches to Women's History; AFR 1241, The Black Family; AFR 1480, Black Women/Black Men; BIO 1187, Biology of Human Reproduction; PHL 1295, Medicine, Religion, and the Healer's Art; DRA 1128, Women in Western Drama; DRA 1129, Sexuality in Drama; ENG 1551, Sex Roles in Literature; MUS 1106, Women in Music; POL 1327, Sex Roles in American Politics; POL 1328, Women in Public Management; POL 1316, Contemporary Revolutionary Politics; POL 3665, Women in Public Management; POL 3667, Equal Opportunity in Public Administration; POL 3668, Legal Issues in Personnel Administration; PSY 1218, Psychology of Women; CJ 1616, Women and Criminal Justice, LNS 1510, Saints and Sinners. The Vision of Women in the Middle Ages and the Renaissance; NUR 1303, Life Crises: Analysis and Response.

These courses represent the most current listing. New courses are continually being developed and added to the program. For more information about courses and the Women's Studies Program contact Professor Debra Kaufman (ext. 2686).

Journalism

Bachelor of Arts Bachelor of Science

Each major will complete the journalism core and one of four concentrations—Newspaper/Print, Radio-Television News, Advertising, or Public Relations—to correspond with his/her career objective.

Journalism Core: JRN 1501, History of Journalism; JRN 1512, Journalism, Ethics and Issues; JRN 1103, Newswriting I; JRN 1104, Newswriting II; JRN 1206, Editing; JRN 1508, Law of the Press; JRN 1301, Photojournalism.

Newspaper/Print Concentration: JRN 1305, Techniques of Journalism; JRN 1432, Local Government Reporting; JRN 1440, Design and Graphics; JRN 1575, Publication Production and Management; one journalism elective.

Radio-Television News Concentration: JRN 1320, Radio News Gathering and Writing; JRN 1421, Television Newswriting; JRN 1422, Television News Production; JRN 1894, Directed Study; one journalism elective.

Public Relations Concentration: JRN 1336, Public Relations Principles; JRN 1440, Design and Graphics; JRN 1460, Public Relations Problems; JRN 1561, Public Relations Practice; one journalism elective.

Advertising Concentration: JRN 1440, Design and Graphics; JRN 1350, Advertising Principles; JRN 1451, Advertising Copy Writing; JRN 1552, Advertising Practice; one journalism elective.

Each major will complete the following related requirements:

ENG 1275, Grammar for Journalists; ENG 1110, Freshman English I; ENG 1111, English II. One course from this list: ENG 1120, Survey of English Literature I;

ENG 1121, Survey of English Literature II; ENG 1123, Survey of American Literature I; ENG 1124, Survey of American Literature II; and one additional English or American literature elective.

POL 1310, American Ideology; POL 1318, State and Local Government; HST 1201, United States to 1877; HST 1202, United States since 1877; ECN 1115, Principles of Macroeconomics; and one additional course in economics or business; MTH 1152 Statistical Thinking; PHL 1200, Introduction to Logic I; PHL 1140, Social and Political Philosophy; two history electives; COP 1135, Professional Development for Journalists.

Introduction to Art, Drama, and Music or one course from each of the following categories—(a): ART 1106, Introduction to Art; ART 1220, American Sculpture and Painting; (b): MUS 1100, Music I; MUS 1101, Music as a Listening Experience.

Bachelor of Arts

In addition to the journalism and related requirements above, candidates for the Bachelor of Arts degree will complete three courses in science and/or math.

Bachelor of Science

In addition to the journalism and related requirements above, candidates for the Bachelor of Science degree will complete six courses in sciences and/or math.

Linguistics

Bachelor of Arts

Freshman Requirements: ENG 1110, Freshman English I; ENG 1111, English II; mathematics course; two courses from the humanities; two from the sciences; and two from the social sciences.

General Requirements: ENG 1118, Introduction to Language and Linguistics; PSY 1262, Language and Cognition; PSY 1361, Introduction to Phonetics; SOA 1135, Language and Culture; ENG 1401, Introduction to Syntax; PHL 1215, Symbolic Logic.

Language Proficiency: Two advanced courses in a spoken second language (see Bachelor of Sciences for proficiency in American Sign Language).

Additional Courses: Five courses from the following: PSY 1261, Bilingualism; PSY 1362, Child Language; PSY 1363, Linguistics of American Sign Language; PSY 1364, Cognition; PSY 1365, Language and the Brain; PSY 1264, Animal Communication; PSY 1263, Body Language; PHL 1440, Philosophy of Language; ENG 1119, Foundations of the English Language; ENG 1402, Grammars of English; ENG 1407, Introduction to Semantics; ENG 1408, Topics in Linguistics; LNL 1235, Applied Linguistics; LNG 1236, Advanced Applied Linguistics.

Laboratory Course: PSY 1562, Laboratory in the Psychology of Language. Seminars: Two of the following: PSY 1661, Seminar in Psycholinguistics; ENG 1690, Seminar in Stylistics.

Practicum: One course: fieldwork, directed study, sign language teaching or interpreting.

Bachelor of Science

Same requirement as the Bachelor of Arts, except that American Sign Language can count toward the second-language proficiency requirement.

Mathematics

Bachelor of Arts

MTH 1143, MTH 1144, MTH 1145, Calculus I, II, and III; MTH 1243, MTH 1244, Calculus and Linear Methods I and II; MTH 1245, MTH 1246, Differential Equations and Linear Methods I and II; MTH 1301, Linear Algebra; MTH 1311, Analysis I; four approved mathematics electives selected in consultation with an adviser. PHY 1231, PHY 1232, PHY 1233, Physics for Science Majors I, II, and III.

Bachelor of Science

MTH 1143, MTH 1144, MTH 1145, Calculus I, II, and III; MTH 1243, MTH 1244, Calculus and Linear Methods I and II; MTH 1245, MTH 1246, Differential Equations and Linear Methods I and II; MTH 1301, Linear Algebra; MTH 1311, Analysis I;

seven approved mathematics electives selected in consultation with an adviser.
PHY 1231, PHY 1232, PHY 1233, Physics for Science Majors I, II, and III; two nonscience courses.

Modern Languages

Bachelor of Arts	Eight advanced electives in the major language,* two advanced electives in the minor language.* ENG 1120, ENG 1121, Survey of English Literature I and II; four history electives.
Bachelor of Science	Twelve advanced electives in the major language, including two conversation and composition courses; six advanced electives in the minor language,* including two conversation and composition courses; two history electives.
Minor in Modern Language	The Department of Modern Languages also offers a minor program for students whose major lies in other disciplines. The general requirement is six advanced courses (beyond the 1104 level) in the language. Interested students should consult with Professor Modee (ext. 2237) about specific course requirements.

*Courses beyond the intermediate level.

Music

Bachelor of Arts	MUS 1201, MUS 1202, MUS 1203, MUS 1204, Theory I, II, III, and IV; MUS 1301, 1302, Masterworks Analysis I and II; MUS 1241, Piano I; MUS 1120, Survey of Music History; MUS 1121, Medieval and Renaissance Music; MUS 1122, Music of the Baroque Era; MUS 1123, Music of the Classical Era; MUS 1124, Music of the Romantic Era; MUS 1125, Music of the Twentieth Century; three approved music electives; eight quarter hours of ensemble credits (MUS 1230, 1231, 1232, and/or 1233). HST 1102, Western Civilization II; INT 1100, Introduction to Art, Music, and Drama; ART 1106, Introduction to Art; or DRA 1101, Theatre Appreciation; or DRA 1112, Drama Theory.
Minor in Music	MUS 1201, MUS 1202, MUS 1203, Theory I, II, and III; MUS 1241, Piano Class I; MUS 1120, Survey of Music History; one approved music elective; any one of the following courses: MUS 1121, Medieval and Renaissance Music; MUS 1122, Music of the Baroque Era; MUS 1123, Music of the Classical Era; MUS 1124, Music of the Romantic Era; MUS 1125, Music of the Twentieth Century.

Philosophy

Bachelor of Arts	PHL 1225, Ancient Philosophy; PHL 1230, Modern Philosophy; PHL 1200, Introduction to Logic I; or PHL 1215, Symbolic Logic; PHL 1400, Theory of Knowledge; or PHL 1405, Metaphysics; or PHL 1335, Moral Philosophy; one philosophy seminar; eight philosophy electives.
Bachelor of Science	PHL 1225, Ancient Philosophy; PHL 1230, Modern Philosophy; PHL 1200, Introduction to Logic I; or PHL 1215, Symbolic Logic; PHL 1400, Theory of Knowledge; or PHL 1405, Metaphysics; or PHL 1335, Moral Philosophy; one philosophy seminar; eight philosophy electives.
Minor in Philosophy	To qualify for a minor in Philosophy, a student must take twenty-eight quarter hours in philosophy to be distributed as follows:

Introductory courses: PHL 1100, Introduction to Philosophy I; or PHL 1105, Introduction to Scientific Method; *History of Philosophy:* PHL 1225, Ancient Philosophy; or PHL 1230, Modern Philosophy. *Logic Requirement:* PHL 1200, Introduction to Logic I; or PHL 1215, Symbolic Logic. At least one of the following courses: PHL 1142, Philosophy of Mind; PHL 1400, Theory of Knowledge; PHL 1405, Metaphysics; PHL 1335, Moral Philosophy.

Electives: Three electives; three electives in Philosophy.

Physics

Bachelor of Arts

PHY 1231, PHY 1232, PHY 1233, Physics for Science Majors I, II, and III, and their associated laboratories—PHY 1531, PHY 1532, PHY 1533; PHY 1301, Intermediate Mechanics; PHY 1302, Electric and Magnetic Fields; three upper-level physics lecture courses, three upper-level laboratory courses.

MTH 1143, MTH 1144, MTH 1145, Calculus I, II, and III; MTH 1243, MTH 1244, Calculus and Linear Methods I and II; one advanced mathematics elective.

Bachelor of Science

PHY 1231, PHY 1232, PHY 1233, Physics for Science Majors I, II, and III, and their associated laboratories—PHY 1531, PHY 1532, PHY 1533; PHY 1301, Intermediate Mechanics; PHY 1302, Electric and Magnetic Fields; PHY 1303, Modern Physics; PHY 1304, Mathematical Physics; PHY 1305, Thermodynamics and Kinetic Theory; PHY 1401, Classical Mechanics; PHY 1402, PHY 1403, Electricity and Magnetism I and II; PHY 1404, Wave Motion and Optics; three upper-level laboratory courses. MTH 1143, MTH 1144, MTH 1145, Calculus I, II, and III; MTH 1243, MTH 1244, Calculus and Linear Methods I and II; MTH 1245, MTH 1246, Differential Equations and Linear Methods I and II; five additional electives from those approved for majors in the following fields: physics, mathematics, chemistry, engineering, biology, and geology.

Bachelor of Science in Applied Physics

PHY 1231, PHY 1232, PHY 1233, Physics for Science Majors I, II, and III, and their associated laboratories—PHY 1531, PHY 1532, PHY 1533; PHY 1301, Intermediate Mechanics; PHY 1302, Electric and Magnetic Fields; PHY 1303, Modern Physics; PHY 1305, Thermodynamics and Kinetic Theory; PHY 1404, Wave Motion and Optics; PHY 1551 and PHY 1552, Electronics for Scientists I and II; PHY 1555, Wave Laboratory; PHY 1557, Advanced Laboratory; PHY 1561, Project Laboratory. MTH 1143, MTH 1144, MTH 1145, Calculus I, II, and III; MTH 1243, MTH 1244, Calculus and Linear Methods I and II; MTH 1245, MTH 1246, Differential Equations I and II.

COM 1100, COM 1101, Pascal I and II; COM 1201, Data Structures. Four additional electives from those approved for majors in the following fields: physics, mathematics, chemistry, computer science, engineering, biology, and geology.

Minor in Physics

PHY 1231, PHY 1232, PHY 1233, Physics for Science Majors I, II, and III or PHY 1221, PHY 1222, PHY 1223, PHY 1224, Physics for Engineering Students I, II, III, and IV; and three upper-level lecture or laboratory courses from the following list: PHY 1301, PHY 1302, PHY 1303, PHY 1304, PHY 1305, PHY 1401, PHY 1402, PHY 1403, PHY 1404, PHY 1411, PHY 1412, PHY 1413, PHY 1414, PHY 1415, PHY 1416, PHY 1551, PHY 1552, PHY 1555.

Instrumentation for Science Major

PHY 1231, PHY 1232, PHY 1233, Physics for Science Majors I, II, and III; or PHY 1221, PHY 1222, PHY 1223, Physics for Engineering Students I, II, and III.

PHY 1555, Wave Laboratory; PHY 1551, PHY 1552, Electronics for Scientists I and II; PHY 1557, Advanced Laboratory.

Political Science

Bachelor of Arts

POL 1110, Introduction to Politics; POL 1111, Introduction to American Government; POL 1112, Introduction to International Relations; POL 1113, Introduction to Foreign Governments and Societies (formerly Introduction to Comparative Politics); POL 1261, Public Administration; one political theory/thought course selected from the following: POL 1370, POL 1373, POL 1374; seven political science electives. Six social science electives selected from at least three of the following areas: African-American studies, anthropology, economics, history, psychology, and sociology.

Bachelor of Science

POL 1110, Introduction to Politics; POL 1111, Introduction to American Government; POL 1112, Introduction to International Relations; POL 1113, Introduction to Foreign Governments and Societies (formerly Introduction to Comparative Politics); POL 1301, Research Methods I; POL 1302, Research Methods II; POL 1261, Public Administration; and one political theory/thought course selected from the following: POL 1370, POL 1373, POL 1374; six political science electives.

Six social science electives selected from at least three of the following areas: African-American studies, anthropology, economics, history, psychology, and sociology.

Minor in Political Science

Any two of the following courses: POL 1110, Introduction to Politics; POL 1111, Introduction to American Government; POL 1112, Introduction to International Relations; POL 1113, Introduction to Foreign Governments and Societies; POL 1261, Public Administration. Any five additional courses offered by the Department of Political Science for Political Science majors, including courses listed above that have not been selected to fulfill the above requirement.

Minor in International Politics

POL 1112, Introduction to International Relations; POL 1113, Introduction to Foreign Governments and Societies; any five additional courses in international politics and/or comparative politics offered by the Department of Political Science.

Concentration in Public Administration

Bachelor of Science

POL 1110, Introduction to Politics; POL 1111, Introduction to American Government; POL 1301, Research Methods I; POL 1302, Research Methods II; POL 1260, Public Policy Analysis; POL 1261, Public Administration; POL 1266, Public Personnel Administration; POL 1267, Public Budgeting; POL 1262, Organization Theory; and one political theory/thought course selected from the following: POL 1370, POL 1373, POL 1374; four public administration electives.

Six social science electives selected from at least three of the following areas: African-American studies, anthropology, economics, history, psychology, and sociology.

Psychology

Bachelor of Arts

Psychology Courses. Basic Courses: PSY 1110, Perspectives in Psychology; and PSY 1112, Foundations of Psychology II; PSY 1211 and PSY 1212, Statistics in Behavioral Sciences I and II. *Specialty Courses:* PSY 1271, Social Psychology, or PCY 1272, Personality I; PSY 1381, Sensation; or PSY 1382, Perception; PSY 1262, Language and Cognition; PSY 1231, Learning and Motivation I; and PSY 1351; Neuropsychology I.

Students choose either General Psychology or one of four areas of concentration: Language and Cognition; Learning, Motivation, and Behavior Analysis; Personality and Social Psychology; or Sensory and Neuropsychology. The additional courses required for each concentration follow:

General Program: Four psychology electives, excluding TIPS* courses; three psychology laboratories; and one psychology seminar.

Language and Cognition Electives: Two from the following courses: Bilingualism, PSY 1261; Intro. to Phonetics, PSY 1361; Child Language, PSY 1362; Linguistics of ASL, PSY 1363; Cognition, PSY 1364; Language and the Brain, 1365. Also any two additional psychology courses, excluding Topics in Psychology (TIPS) courses.

Laboratories: Psycholinguistics, PSY 1562; Cognition, PSY 1564; Directed Study in Language and Cognition, PSY 1890.

Seminar: Psycholinguistics, PSY 1661, or Cognition, PSY 1662.

Learning, Motivation, and Behavior Analysis Electives: Learning and Motivation II, PSY 1331; Programmed Learning, PSY 1332; Behavior Therapies, PSY 1431; and one of the following: Seminar in Behavior Theory, PSY 1631, or Seminar in Behavior Modification, PSY 1632.

Laboratories: Learning and Motivation, PSY 1531; Behavior Modification, PSY 1532; Directed Study in Learning and Motivation, PSY 1890.

Seminar: Behavior Theory, PSY 1631, or Behavior Modification, PSY 1632 (select whichever one was *not* used to fulfill the above psychology requirement).

Personality and Social Psychology Electives: Social Psychology, PSY 1271, or Personality I, PSY 1272 (select whichever course was not taken to fulfill basic psychology course requirements.); Personality II, PSY 1273. Also, Social Psychology, SOC 1135, and two courses from the following list: Aggression, SOA 1185; Sex, Sex Roles, and Family, SOA 1160; Sociology of Prejudice, SOC 1140; and Theories of Persuasion, SPC 1315. Credit for all courses taken outside of the Psychology Department will be counted toward the psychology major requirements only if the entire concentration is completed. If you change concentration or enroll in the general psychology track, such courses will be considered free electives.

Laboratories: Social Psychology, PSY 1571; or Personality, PSY 1572; and two additional psychology laboratory courses.

Seminar: One of the following: Social Psychology, PSY 1671; Clinical Psychology and Personality, PSY 1672; or Social Psychology, SOC 1337.

Sensory and Neuropsychology Electives: Sensation, PSY 1381, or Perception, PSY 1382 (select whichever course was not used to fulfill the specialty course requirements), and two courses from the following: Neuropsychology II, PSY 1352; Comparative Psychology and Ethology, PSY 1353; Functional Neuroanatomy, PSY 1354. Also, one course from the following: Seminar in Neuropsychology, PSY 1651; Seminar in Sensory Physiology, PSY 1652; Seminar in Sensation and Perception, PSY 1681.

Laboratories: Neuropsychology, PSY 1551; Sensation and Perception, PSY 1581; and one additional psychology laboratory course.

Seminar: One of the following: Neuropsychology, PSY 1651; Sensory Physiology, PSY 1652; Sensation and Perception, PSY 1681. (Select one of the two seminars that was not used to fulfill the psychology elective requirement described above.)

Bachelor of Science

General Requirements. Four mathematics, science, or computer science courses beyond the Core Curriculum requirements. Recommended courses include: BIO 1106, BIO 1107, PHY 1201-1531, PHY 1202-1532, CHM 1111, CHM 1151, MTH 1106, MTH 1107, MTH 1160. Also, one humanities course beyond the Core Curriculum requirements.

Psychology Courses. Basic Courses: PSY 1110, Perspectives in Psychology; and PSY 1112, Foundations of Psychology II; PSY 1211 and PSY 1212, Statistics in Behavioral Sciences I and II.

Specialty Courses: PSY 1271, Social Psychology, or PSY 1272, Personality I; PSY 1381, Sensation, or PSY 1382, Perception; PSY 1262, Language and Cognition; PSY 1231, Learning and Motivation I; and PSY 1351, Physiological Bases of Psychology.

Students choose either General Psychology or one of four areas of concentration: Language and Cognition; Learning, Motivation and Behavior Analysis; Personality

*TIPS means Topics in Psychology Courses.

and Social Psychology; or Sensory and Neuropsychology. The additional courses required for each concentration follow:

General Program: six psychology electives, excluding TIPS courses; four psychology laboratories; one psychology seminar; and one Directed Study of Honors Research, from PSY 1890 to PSY 1899. Directed Study and Honors research provide students with the opportunity to conduct research in a faculty member's laboratory. See your adviser early in the preceding quarter for assistance in selecting a potential sponsor for your research project. Make arrangements with your sponsor well in advance of registration.

Language and Cognition Electives: Two from the following courses: Bilingualism, PSY 1261; Intro. to Phonetics, PSY 1361; Child Language, PSY 1362; Linguistics of ASL, PSY 1363; Cognition, PSY 1364; Language and the Brain, PSY 1365. Also, Introduction to Language and Linguistics, ENG 1118, and two additional psychology courses, excluding TIPS courses.

Laboratories: Psycholinguistics, PSY 1562; Cognition, PSY 1564; Directed Study in Language and Cognition, PSY 1890; and one additional psychology laboratory course.

Seminar: Psycholinguistics, PSY 1661, or Cognition, PSY 1662.

Directed Study or Honors Research: One course from PSY 1890 to 1899. Directed Study and Honors research provide students with the opportunity to conduct research in a faculty member's laboratory. See your adviser early in the preceding quarter for assistance in selecting a potential sponsor for your research project. Make arrangements with your sponsor well in advance of registration.

Learning, Motivation, and Behavior Analysis Electives: Learning and Motivation II, PSY 1331; Programmed Learning, PSY 1332; Behavior Therapies, PSY 1431; and one of the following: Seminar in Behavior Theory, PSY 1631; Seminar in Behavior Modification, PSY 1632. Also, two additional psychology elective courses, excluding Topics in Psychology (TIPS) courses.

Laboratories: Learning and Motivation, PSY 1531; Behavior Modification, PSY 1532; Directed Study in Learning and Motivation, PSY 1890. Also, one additional psychology laboratory course.

Seminar: Behavior Theory, PSY 1631, or Behavior Modification, PSY 1632. (Select whichever one was not used to fulfill the psychology elective requirement described above.)

Directed Study or Honors Research: One course from PSY 1890 to PSY 1899. Directed Study and Honors research provide students with the opportunity to conduct research in a faculty member's laboratory. See your adviser early in the preceding quarter for assistance in selecting a potential sponsor for your research project. Make arrangements with your sponsor well in advance of registration.

Personality and Social Psychology Electives: Social Psychology, PSY 1271, or Personality I, PSY 1272 (select whichever course was not taken to fulfill basic psychology course requirements), Personality II, PSY 1273. Also, Social Psychology, SOC 1135, and two courses from the following list: Aggression, SOA 1185; Sex, Sex Roles, and Family, SOA 1160; Sociology of Prejudice, SOC 1140; and Theories of Persuasion, SPC 1315. Credit for all courses taken outside of the Psychology Department will be counted toward the psychology major requirements only if the entire concentration is completed. If you change concentration or enroll in the general psychology track, such courses will be considered free electives.

Laboratories: Social Psychology, PSY 1571, or Personality, PSY 1572; and three additional psychology laboratory courses.

Seminar: One of the following: Social Psychology, PSY 1671; Clinical Psychology and Personality, PSY 1672; or Social Psychology, SOC 1337.

Directed Study or Honors Research: One course from PSY 1890 to PSY 1899. Directed Study and Honors research provide students with the opportunity to conduct research in a faculty member's laboratory. See your adviser early in the preceding quarter for assistance in selecting a potential sponsor for your research project. Make arrangements with your sponsor well in advance of registration.

Sensory and Neuropsychology Electives: Sensation, PSY 1381; or Perception, PSY 1382 (whichever one was not used to fulfill the specialty course requirement); and two from the following: Neuropsychology II, PSY 1352; Comparative Psychology and Ethology, PSY 1353; Functional Neuroanatomy, PSY 1354. Also, two additional psychology courses, excluding the Topics in Psychology (TIPS) courses.

Laboratories: Neuropsychology, PSY 1551; Sensation and Perception, PSY 1581; and two additional psychology laboratory courses.

Seminar: One of the following: Neuropsychology, PSY 1651; Sensory Physiology, PSY 1652; Sensation and Perception, PSY 1681. (Select one of the two seminars that was not used to fulfill the psychology elective requirement described above.)

Directed Study and Honors Research: One course from PSY 1890 to PSY 1899. Directed Study and Honors research provide students with the opportunity to conduct research in a faculty member's laboratory. See your adviser early in the preceding quarter for assistance in selecting a potential sponsor for your research project. Make arrangements with your sponsor well in advance of registration.

Minor in Psychology

Psychology Courses: Basic Courses: PSY 1111, Foundations of Psychology I; PSY 1112, Foundations of Psychology II; PSY 1211, Statistics in Behavioral Science I; and PSY 1212, Statistics in Behavioral Science II.

Students choose either General Psychology or one of four areas of concentration: Language and Cognition; Learning, Motivation, and Behavior Analysis; Personality and Social Psychology; or Sensory and Neuropsychology.

The additional courses required for each concentration follow:

General Program: PSY 1271, Social Psychology I; or PSY 1272, Personality; PSY 1381, Sensation, or PSY 1382, Perception; PSY 1262, Language and Cognition; PSY 1231, Learning and Motivation I; PSY 1351, Neuropsychology; and one psychology laboratory.

Language and Cognition: PSY 1262, Language and Cognition. Select four of the following: PSY 1261, Bilingualism; PSY 1361, Introduction to Phonetics; PSY 1362, PSY 1363, Linguistics of ASL; Child Language; PSY 1364, Cognition; PSY 1365, Language and the Brain. Also, PSY 1562, Psycholinguistics; or PSY 1564, Cognition.

Learning, Motivation, and Behavior Analysis: PSY 1241, Human Behavioral Development I; PSY 1231, Learning and Motivation I; PSY 1331, Learning and Motivation II; PSY 1381, Sensation; PSY 1431, Behavior Change in Institutions; and PSY 1531, Learning and Motivation Laboratory.

Personality and Social Psychology: PSY 1271, Social Psychology; PSY 1272, Personality I; PSY 1273, Personality II; PSY 1373, Abnormal Psychology I; PSY 1373, Abnormal Psychology I; PSY 1374, Abnormal Psychology II; and PSY 1571, Laboratory in Social Psychology; or PSY 1572, Laboratory in Personality.

Sensory and Neuropsychology: PSY 1381, Sensation; PSY 1382, Perception; PSY 1351, Physiological Bases of Psychology I. Two of the following: PSY 1352, Physiological Bases of Psychology II; PSY 1353, Comparative Psychology and Ethology; or PSY 1354, Functional Neuroanatomy. Also, PSY 1581, Sensation and Perception; or PSY 1551, Neuropsychology.

Sociology-Anthropology Concentration in Sociology

Bachelor of Arts

Preparatory Requirements: SOC 1100, Introduction to Sociology; and SOA 1100, Introduction to Anthropology. *Core Requirements:* SOC 1320, Introduction to Statistical Analysis; SOC 1321, SOC 1322, Research Methods I and II; SOC 1300, Classical Social Thought; SOC 1301, Current Social Thought; SOC 1310, Class, Power, and Social Change (preferably in senior year). *Elective Requirements:* two intermediate courses (1100 or 1200 level); two advanced courses (1300 or above); one anthropology course beyond SOA 1100.

Six electives in the social sciences other than sociology-anthropology.

Bachelor of Science

Preparatory Requirements: SOC 1100, Introduction to Sociology and SOA 1100, Introduction to Anthropology. *Core Requirements:* SOC 1320, Introduction to Statistical Analysis; SOC 1321, SOC 1322, Research Methods I and II; SOC 1300, Classical Social Thought; SOC 1301, Current Social Thought; SOC 1310, Class, Power, and Social Change (preferably in senior year). *Elective Requirements:* two intermediate courses (1100 or 1200 level); two advanced courses (1300 or above); one anthropology course beyond SOA 1100.

Six electives in the social sciences other than sociology-anthropology.

Approved six-course specialization.

Minor in Sociology

Requirements: SOC 1100, Introduction to Sociology; any two courses from among the following: SOC 1321, Research Methods I; SOC 1322, Research Methods II; SOC 1300, Classical Social Thought; SOC 1301, Current Social Thought; and any three-course specialization in sociology arranged between the student and adviser.

Concentration in Anthropology

Bachelor of Arts

Preparatory Requirements: SOA 1100, Introduction to Anthropology; and SOC 1100, Introduction to Sociology. *Core Requirements:* at least three of the following: SOA 1135, Language and Culture; SOA 1155, Individual and Culture; SOA 1301, Human Origins; SOA 1160, Sex, Sex Roles, and Family; SOA 1103, Culture in Transition; SOA 1425, Tribal Society and Cultures; SOA 1146, Peasant Society and Culture; SOA 1470, Myth and Religion. *Elective Requirements:* at least six additional anthropology courses; one sociology elective beyond SOC 1100.

Six electives in the social sciences other than sociology-anthropology.

Bachelor of Science

Preparatory Requirements: SOA 1100, Introduction to Anthropology; and SOC 1100, Introduction to Sociology. *Core Requirements:* at least three of the following: SOA 1135, Language and Culture; SOA 1155, Individual and Culture; SOA 1301, Human Origins; SOA 1160, Sex, Sex Roles, and Family; SOA 1103, Culture in Transition; SOA 1425, Tribal Society and Cultures; SOA 1146, Peasant Society and Culture; SOA 1470, Myth and Religion. *Elective Requirements:* at least six additional anthropology courses; one sociology elective beyond SOC 1100.

Six electives in the social sciences other than sociology-anthropology.

Approved five-course specialization.

Minor in Anthropology

Requirements: SOA 1100, Introduction to Social Anthropology; SOA 1135, Language and Culture; SOA 1155, Individual and Culture; SOA 1160, Sex, Sex Roles, and Family; and any two-course specialization in anthropology arranged between the student and adviser.

Speech Communication

Concentration in Group and Public Communication

Bachelor of Arts

Required Courses: SPC 1115, Introduction to Communication Skills; SPC 1300, Introduction to Communication Theory; SPC 1239, Argumentation and Debate, or SPC 1338, Group Discussion; SPC 1330, Interpersonal Communication I; SPC 1315, Theories of Persuasion, or SPC 1410, Contemporary Public Address; eight speech communication electives; POL 1110, Introduction to Politics, or POL 1111, Introduction to American Government; PSY 1112, Foundations of Psychology II, or SOC 1100, Introduction to Sociology; PSY 1271, Social Psychology, or SOC 1135, Social Psychology.

Bachelor of Science

Required Courses: SPC 1115, Introduction to Communication Skills; SPC 1300, Introduction to Communication Theory; SPC 1330, Interpersonal Communication I;

SPC 1338, Group Discussion; SPC 1315, Theories of Persuasion; SPC 1415, Persuasive Techniques; SPC 1600, Introduction to Communication Research; six speech communication electives to be chosen from the following: SPC 1239, Argumentation and Debate; SPC 1116, Business and Professional Speaking; SPC 1250, The Mass and the Media; SPC 1410, Contemporary Public Address; SPC 1317, Theories of Audience Behavior; SPC 1437, Consultation Skills; SPC 1331, Interpersonal Communication II; SPC 1232, Female/Male Communication; ENG 1118, Introduction to Linguistics; ENG 1407, Introduction to Semantics; PHL 1200, Introduction to Logic I. Also, eight social science credits beyond the introductory level, selected in consultation with the student's adviser and based upon their value to the student's post-graduate activities.

College of Arts and Sciences distribution requirements; no language requirement.

Concentration in Personal Performance

Bachelor of Arts

Required Courses: SPC 1115, Introduction to Communication Skills; SPC 1110, Voice and Articulation; SPC 1111, Oral Interpretation; SPC 1116, Business and Professional Speaking; SPC 1239, Argumentation and Debate; SPC 1210, Advanced Vocal Techniques, or SPC 1211, Advanced Oral Interpretation; SPC 1890, Directed Study; six speech communication electives.

Bachelor of Science

Required Courses: SPC 1115, Introduction to Communication Skills; SPC 1300, Introduction to Communication Theory; SPC 1110, Voice and Articulation; SPC 1111, Oral Interpretation; SPC 1890, Directed Study; eight speech communication electives selected from the following: SPC 1239, Argumentation and Debate; SPC 1116, Business and Professional Speaking; SPC 1210, Advanced Vocal Techniques; SPC 1211, Advanced Oral Interpretation; SPC 1315, Theories of Persuasion; SPC 1415, Persuasive Techniques; SPC 1338, Group Discussion; SPC 1318, Communication in Education; SPC 1250, The Mass and the Media; SPC 1410, Contemporary Public Address; SPC 1317, Theories of Audience Behavior; SPC 1437, Consultation Skills; SPC 1330, Interpersonal Communication I; SPC 1331, Interpersonal Communication II; SPC 1232, Female/Male Communication; SPC 1600, Introduction to Communication Research; ENG 1118, Introduction to Linguistics; ENG 1407, Introduction to Semantics; PHL 1200, Introduction to Logic I. In addition, the student must complete not less than four courses taught outside the Department, selected in consultation with his/her adviser on the basis of their value to the student's proposed post-graduate activities and approved by Speech Communication Curriculum Committee.

Theatre and Dance

Bachelor of Arts

Theatre majors have the opportunity of selecting one of seven concentrations: acting, scenic design, lighting design; costume design; literature/criticism; dance performance; and a generalist specialization. It is recommended that all theatre majors *except* those in the dance performance concentration select the following courses in their *Freshman* year: DRA 1100, Introduction to Theatre Arts; DRA 1150, Introduction to Acting; DRA 1200, Stagecraft; DRA 1212, Introduction to Theatre Design. It is recommended that those selecting the dance performance concentration select the following courses in their *Freshman* year: HSL 1153, Modern Dance I; HSL 1154, Modern Dance II; HSL 1156, Ballet I; HSL 1159, Jazz Dance; HSL 1165, Improvisation; HSL 1314, Movement Fundamentals; HSL 1630, Aspects of Dance; DRA 1100, Introduction to Theatre Arts.

The following department core courses are required of all theatre majors in all concentrations *except* dance performance. DRA 1100, Introduction to Theatre Arts; DRA 1106, DRA 1107, DRA 1108, Theatre History I, II, and III; DRA 1112, Drama Theory/Criticism; DRA 1150, Introduction to Acting; DRA 1180, Concepts

of Direction; DRA 1200, Stagecraft; DRA 1212, Introduction to Theatre Design; DRA 1800, DRA 1801, DRA 1802, DRA 1803, Practicum in Production; ENG 1279, The Modern Novel; ENG 1658, Introduction to Shakespeare.

Theatre majors with a dance performance concentration are required to complete these department core courses. DRA 1100, Introduction to Theatre Arts; DRA 1112, Drama Theory/Criticism; DRA 1150, Introduction to Acting; DRA 1180, Concepts of Direction; DRA 1200, Stagecraft; DRA 1212, Introduction to Theatre Design; DRA 1800, DRA 1801, DRA 1802, DRA 1803, Practicum in Production; HSL 1261, Anatomy/Physiology I; HSL 1262, Kinesiology I; HSL 1621, Dance in Cultural Perspectives; HSL 1630, Aspects of Dance; HSL 1632, Dance in the Twentieth Century; HSL courses are offered in the Boston-Bouvé College of Human Development Professions.

The following lists the specific requirements for each concentration:

Acting: DRA 1280, Stage Makeup; DRA 1300, Acting II, DRA 1301, Acting III; DRA 1370, Rehearsal and Performance; DRA 1155, Speech for the Theatre. Eight quarter hours in Physical Education from the following: Modern Dance, Ballet, Jazz Dance, Gymnastics, Fencing and Physical Conditioning. Also, eight quarter hours of dramatic literature elective courses offered by the department and two workshops in voice and movement training.

Costume Design: ART 1101, Art History Since 1400; ART 1124, Creative Drawing; ART 1254, Intermediate Drawing; DRA 1209, Theatrical Drafting; DRA 1210, Scene Design I; DRA 1226, Lighting Design I; DRA 1261, Costuming I; DRA 1265, Pattern Drafting and Costume Construction; DRA 1280, Stage Makeup; DRA 1400, Costuming II; and DRA 1410, Technical Production.

Dance Performance: HSL 1153, Modern Dance I; HSL 1154, Modern Dance II; HSL 1155, Modern Dance III; HSL 1156, Ballet I; HSL 1157, Ballet II, HSL 1158, Ballet III; HSL 1159, Jazz Dance I; HSL 1160, Jazz Dance II; HSL 1161, Jazz Dance III; HSL 1162, Rhythmic Analysis; HSL 1165, Dance Improvisation/Composition; HSL 1252, Dance Composition I; HSL 1272, Dance Composition II; HSL 1314, Movement Fundamentals; HSL 1321, Modern Dance IV; HSL 1322, Ballet IV; HSL 1324, Jazz Dance IV; HSL 1325, HSL 1326, HSL 1327, Dance Rehearsal and Performance I, II, and III; HSL 1634, Laban Movement and Analysis; HSL 1513, Independent Study III.

Lighting Design: ART 1101, Art History Since 1400; DRA 1209, Theatrical Drafting; DRA 1210, Scene Design I; DRA 1225, Scene Painting; DRA 1226, Lighting Design I; DRA 1246, Sound for the Theatre; DRA 1261, Costuming I; DRA 1280, Stage Makeup; DRA 1410, Technical Production; DRA 1420, Advanced Drafting and Construction; and DRA 1430, Lighting Design II.

Literature/Criticism: ART 1100, Art History to 1400; ART 1101, Art History Since 1400; DRA 1122, Twentieth Century European Theatre; DRA 1140, Playwriting I; MUS 1120, Survey of Music History; PHL 1340, Aesthetics; plus eight quarter hours in Special Topics in drama criticism offered by the department and eight quarter hours of dramatic literature elective courses offered by the department.

Scenic Design: ART 1101, Art History Since 1400; DRA 1209, Theatrical Drafting; DRA 1210, Scene Design I; DRA 1213, Scene Design II; DRA 1214, Scene Design III; DRA 1225, Scene Painting; DRA 1226, Lighting Design I; DRA 1261, Costuming I; DRA 1410, Technical Production; and DRA 1420, Advance Drafting and Construction.

Generalist: Completion of departmental core courses plus the completion of forty quarter hours of departmental electives.

Minor in Theatre

All students minoring in Theatre are required to complete the following courses (for thirty-two quarter hours): DRA 1106, Theatre History I; DRA 1107, Theatre History II; DRA 1108, Theatre History III; DRA 1150, Introduction to Acting; DRA 1180, Concepts of Direction; DRA 1200, Stagecraft; DRA 1212, Introduction to Theatrical Design; DRA 1100, Introduction to Theatre Arts. Laboratory practice in technical theatre and performance, in conjunction with the course requirements, is a required part of the minor.

Boston-Bouvé College of Human Development Professions

Specimen Program in Athletic Training/Teacher Preparation

First Year

Quarter 1			Quarter 2			Quarter 3		
No.	Course	Q.H.	No.	Course	Q.H.	No.	Course	Q.H.
BIO 1140	Bio. I	4	HSL 1256	L/C Plan	3	MTH 1106	Math	4
ENG 1110	Fresh. Eng. I	4	CHM 1111	CHEMISTRY I	5	HSL 1281	Curr. Hlth. Issues	4
ED 1100	Social Sci.	4	ENG 1111	Fresh. Eng. II	4	HSL 1253	Grp. D.	3
HSL 1255	Human Move.	3	ED 1102	Hum. Dev. I	4	HSL 1254	F. Aid	2
HSL 1101	Swimming	1	HSL 1109	Gymnastics I	1	HSL 1173	T & F	1
HSL 1133	Phy. Cond.	1	HSL 1140	Basketball	1	HSL 1110/12	Gym	1
						HSL 1257	H/P PE	3

Second Year

Quarter 4			Quarter 5		
No.	Course	Q.H.	No.	Course	Q.H.
HSL 1261	Anat./Phys. I	4	INT 1100	Computer	4
HSL 1260	Motor Dev.	4	HSL 1627	THER. MOD.	4
PHY 1201	PHYSICS	4	ED 1103	Human Dev. II	4
HSL 1605	BASIC ATHL. TRNG.	3	HSL 1116	Tennis	1
HSL 1268	BASIC A.T. LAB	1	HSL 1132	Wt. Trng.	1
HSL 1259	Sec. School Act.	3	_____	Elective (if needed)	4

Third Year

Quarter 6			Quarter 7		
No.	Course	Q.H.	No.	Course	Q.H.
HSL 1611	Kinesiology	4	HSL 1610	Anat./Phys. II	4
ED 1307	Ed. Stat.	4	HSL 1626	Meas. & Ev.	4
HSL 1615	Critical Teaching	4	HSL 1626	THER. RECOND.	4
HSL 1608	CLINICAL A.T.	2	HSL _____	Tac	2
HSL 1114	Badminton	1	HSL 1606	Motor Learning	4
PSY 1111	Found. of Psych.	4			

Fourth Year

Quarter 8			Quarter 9		
No.	Course	Q.H.	No.	Course	Q.H.
HSL 1612	Exercise Physiol.	4	HSL 1616	Curriculum Dev.	3
HSL 1463	Overview of Dis.	4	HSL 1602	Theory of Coach.	2
HSL 1609	ADVANCED A.T.	4	HSL 1286	NUTRITION	4
_____	Elective	4	_____	Elective	4
HSL 1423	COMM. REC. MGMT.	_____	HSL 1266	PHY. COND. PROG.	2
HSL _____	Tac	2	HSL 1142	Volleyball	1
			HSL _____	Skill Elec.	1

Fifth Year

Quarter 10			Quarter 11		
No.	Course	Q.H.	No.	Course	Q.H.
HSL 1623	Sup. St. Teach.	_____	HSL 1617	Adm. of PE. or El.	4
HSL 1624	A.T. INTERNSHIP	_____	HSL 1600	PSYCH. OF SPORT	2
			HSL 1625	SENIOR SEMINAR	4
			_____	Elective	4

Note: Courses spelled in capital letters are specific to concentration.

184 Q.H. = Minimum graduation requirement

Specimen Program in Cardiovascular Health and Exercise

First Year

Quarter 1			Quarter 2			Quarter 3		
No.	Course	Q.H.	No.	Course	Q.H.	No.	Course	Q.H.
BIO 1140	Bio. I	4	HSL 1256	L/C Plan	3	MTH 1106	Math	4
ENG 1110	Fresh. Eng. I	4	BIO 1141	BIOLOGY II	4	HSL 1281	Curr. Hlth. Issues	4
ED 1100	Social Sci.	4	ENG 1111	Fresh. Eng. II	4	ED 1103	Hum. D.	4
HSL 1255	Human Move.	3	ED 1102	Hum. Dev. I	4	HSL 1254	F. Aid	2
HSL 1101	Swimming	1	HSL _____	Guided Skill Elec.	1	HSL _____	Guided Skill Elec.	2
HSL 1133	Phy. Cond.	1						

Second Year

Quarter 4			Quarter 5		
No.	Course	Q.H.	No.	Course	Q.H.
HSL 1261	Anat./Phys. I	4	INT 1100	Computer	4
HSL 1260	Motor Dev.	4	CHM 1112	CHEMISTRY II	5
CHM 1111	CHEMISTRY I	5	PSY 1111	Psychology I	4
HSL 1605	BASIC ATHL. TRNG.	3	_____	Elective	4
HSL 1268	BASIC A.T. LAB	1	HSL 1132	Wt. Trng.	1

Third Year

Quarter 6			Quarter 7		
No.	Course	Q.H.	No.	Course	Q.H.
HSL 1611	Kinesiology	4	HSL 1610	Anat./Phys. II	4
ED 1307	Ed. Stat.	4	HSL 1626	Meas. & Ev.	4
CRS 1313	Intro. Counseling	4	_____	Elective	4
_____	Elective	4	_____	Elective	4

Fourth Year

Quarter 8			Quarter 9		
No.	Course	Q.H.	No.	Course	Q.H.
HSL 1612	Exercise Physiol.	4	HSL 1613	Ex. TEST/PREC.	3
HSL 1423	COMM. REC. MKTG.	4	HSL 1614	ELECTROCARD.	4
HSL 1426	BUDGET ANALYSIS	4	HSL 1286	NUTRITION	4
_____	Elective	4	HSL 1506	COMM. HLTH.	4
			HSL 1266	Phy. Cond. Prog.	2

Fifth Year

Quarter 10			Quarter 11		
No.	Course	Q.H.	No.	Course	Q.H.
HSL 1622	Sup. Field Exp.	12	HSL 1502	COMM. & DEG. DIS.	4
			HSL 1510	HLTH. COUNS.	4
			HSL 1866	SP PROBLEMS	4
			_____	Elective	4

Note: Courses spelled in capital letters are specific to concentration.

177 Q.H. = Minimum graduation requirements

Specimen Program in Athletic Training/Cardiovascular Health and Exercise

First Year

Quarter 1			Quarter 2			Quarter 3		
No.	Course	Q.H.	No.	Course	Q.H.	No.	Course	Q.H.
BIO 1140	Bio. I	4	HSL 1256	L/C Plan	3	MTH 1106	Math	4
ENG 1110	Fresh. Eng. I	4	BIO 1141	BIOLOGY II	4	HSL 1281	Curr. Hlth. Issues	4
ED 1100	Social Sci.	4	ENG 1111	Fresh. Eng. II	4	ED 1103	Human Dev. II	4
HSL 1255	Human Move.	3	ED 1102	Hum. Dev. I	4	CHM 1111	CHEM. I	5
HSL 1101	Swimming	1	PSY 1111	Fnd. Psych.	4	HSL 1254	F. Aid	2
HSL 1133	Phy. Cond.	1						

Second Year

Quarter 4			Quarter 5		
No.	Course	Q.H.	No.	Course	Q.H.
HSL 1261	Anat./Phys. I	4	INT 1100	Computer	4
HSL 1260	Motor Dev.	4	HSL 1627	THER. MOD.	4
PHY 1201	PHYSICS	4	CHM 1112	CHEMISTRY II	5
HSL 1605	BASIC ATHL. TRNG.	3	HSL 1132	Weight Training	1
HSL 1268	BASIC A.T. LAB	1	HSL 1600	PSYCH. OF SPORT	2

Third Year

Quarter 6			Quarter 7		
No.	Course	Q.H.	No.	Course	Q.H.
HSL 1611	Kinesiology	4	HSL 1610	Anat./Phys. II	4
ED 1307	Ed. Stat.	4	HSL 1626	Meas. & Ev.	4
CRS 1313	INTRO. COUNSEL.	4	HSL 1626	THER. RECOND.	4
HSL 1608	CLINICAL A.T.	2		Elective	4
	Elective	4			

Fourth Year

Quarter 8			Quarter 9		
No.	Course	Q.H.	No.	Course	Q.H.
HSL 1612	Exercise Phys.	4	HSL 1613	EX. TEST/PRESC.	3
HSL 1463	Overview of Dis.	4	HSL 1614	ELECTROCARD.	4
HSL 1609	ADVANCED A.T.	4	HSL 1286	NUTRITION	4
HSL 1423	COMM. REC. MKTG.	4	HSL 1506	COMM. HEALTH	4
HSL	Skill Elective	1	HSL 1266	PHY. COND. PROG.	2

Fifth Year

Quarter 10			Quarter 11		
No.	Course	Q.H.	No.	Course	Q.H.
HSL 1622	Sup. Field Exp.		HSL 1502	COMM. & DEG. DIS.	4
HSL 1624	A.T. INTERNSHIP		HSL 1510	HEALTH COUNS.	4
			HSL 1625	SENIOR SEMINAR	4
			HSL 1866	SPECIAL PROB.	4

Note: Courses spelled in capital letters are specific to concentration.

186 Q.H. = Minimum graduation requirement

Specimen Program in Physical Education Teacher Preparation**First Year**

Quarter 1			Quarter 2			Quarter 3		
No.	Course	Q.H.	No.	Course	Q.H.	No.	Course	Q.H.
BIO 1140	Bio. I	4	HSL 1256	L/C Plan	3	MTH 1106	Math	4
ENG 1110	Fresh. Eng. I	4	CHM 1111	Chem. I or	5	HSL 1281	Curr. Hlth. Issues	4
ED 1100	Social Sci.	4	BIO 1141	BIO. II or	4	HSL 1253	Grp. D.	3
HSL 1255	Human Move.	3	PHY 1201	Physics	4	HSL 1254	F. Aid	2
HSL 1101	Swimming	1	HSL 1109	Gymnastics I	1	HSL 1173	T & F	1
HSL 1133	Phy. Cond.	1	HSL 1140	Basketball	1	HSL 1110/12	Gym	1
			ENG 1111	Fresh. Eng. II	4	HSL 1257	H/P PE	3
			ED 1102	Hum. Dev. I	4			

Second Year

Quarter 4			Quarter 5		
No.	Course	Q.H.	No.	Course	Q.H.
HSL 1261	Anat./Phys. I	4	INT 1100	Computer	4
HSL 1260	Motor Dev.	4		Elective	4
HSL 1258	Elem. Sch. Act. or	4	ED 1103	Human Dev. II	4
HSL 1259	Sec. Sch. Act.	3	HSL 1116	Tennis	1
HSL	Skill Elec. (Sec.)	1	HSL	Skill Elec.	1
	Elective	4		Elective	4

Third Year

Quarter 6			Quarter 7		
No.	Course	Q.H.	No.	Course	Q.H.
HSL 1611	Kinesiology	4	HSL 1610	Anat./Phys. II	4
ED 1307	Ed. Stat.	4	HSL 1626	Meas. & Ev.	4
HSL 1615	Crit. Teaching	4	HSL 1606	Motor Learning	4
HSL _____	Tac	2	HSL _____	Tac	2
HSL 1114	Badminton	1	_____	Elective	2
PSY 1111	Found. of Psych.	4	HSL _____	Skill Elec.	1

Fourth Year

Quarter 8			Quarter 9		
No.	Course	Q.H.	No.	Course	Q.H.
HSL 1612	Exer. Physiology	4	HSL 1616	Curriculum Dev.	3
HSL 1463	Overview of Dis.	4	HSL 1602	Thry. Coach. or	
_____	Elective	4	HSL 1603	Thry. Play	2
HSL _____	Skill Elective	1	_____	Elective	4
HSL _____	Tac (2)	4	HSL 1605	Basic A.T.	3
			HSL 1142	Volleyball	1
			_____	Elective	4

Fifth Year

Quarter 10			Quarter 11		
No.	Course	Q.H.	No.	Course	Q.H.
HSL 1623	Sup. Stu. Teach.	12	HSL 1617	Adm. of PE.	4
			_____	Elective	4
			_____	Elective	4
			_____	Elec. (if need)	4

180 Q.H. = Minimum graduation requirement

Specimen Program in Recreation Management

First Year

Quarter 1			Quarter 2			Quarter 3		
No.	Course	Q.H.	No.	Course	Q.H.	No.	Course	Q.H.
SPS 1115	Speech Fund.	3	ENG 1111	Fresh. Eng. II	4	HSL 1281	Curr. Hlth. Issues	4
Eng 1110	Fresh. Eng. I	4	BIO 1140	Bio. I	4	BIO 1141	Bio. II	4
ED 1100	Soc. Sci.	4	HSL 1223	Life Career Planning	4	ED _____	Fdn. El.	4
HSL 1220	Fdn. Ldship./		INT 1100	Computer	4	HSL _____	Prof. Skills	4
	Leisure Serv.	4				HSL 1222	Leisure Aw.	2

Second Year

Quarter 4			Quarter 5		
No.	Course	Q.H.	No.	Course	Q.H.
ED 1102	Human Dev. I	4	ED 1103	Human Dev. II	4
HSL 1261	Anat./Phy. I	4	HSL 1610	Anat./Phy. II	4
HSL 1221	Int. Rec. & Les. Serv.	3	_____	Guided Elective	4
_____	Science Elective	4	_____	Science Elective	4

Third Year

Quarter 6			Quarter 7		
No.	Course	Q.H.	No.	Course	Q.H.
HSL 1408	Research Methods	4	HSL 1409	Research App.	4
HSL 1426	Budget Analysis	4	HSL 1401	Program Planning	4
HSL 1423	Comm. Rec. Mgmt.	3	HSL _____	Dept. Elective	3
_____	Guided Elective	4	_____	Guided Elective	4

Fourth Year**Quarter 8**

No.	Course	Q.H.
HSL 1400	Group Dynamics	3
HSL 1406	Internship Sem.	1
HSL 1446	El. Out. Rec. Pl.	4
HSL _____	Dept. Elective	3
_____	Guided Elective	4

Quarter 9

No.	Course	Q.H.
HSL 1470	Int. Rec. & Les. Serv.	12

Fifth Year**Quarter 10**

No.	Course	Q.H.
HSL 1422	Prog. Eval. in Rec.	4
HSL _____	Dept. Elective	3
_____	Guided Elective	4
_____	Guided Elective	4

Quarter 11

No.	Course	Q.H.
HSL 1410	Senior Seminar	4
HSL 1421	Admin. Rec/Parks	4
HSL _____	Dept. Elective	4
_____	Guided Elective	4

172 Q.H. = Minimum graduation requirement

Specimen Program in Therapeutic Recreation**First Year****Quarter 1**

No.	Course	Q.H.
SPC 1115	Speech Fund.	3
ENG 1110	Fresh. Eng. I	4
ED 1100	Soc. Sci.	4
HSL 1220	Fn. Ldsp. Ls. Sv.	4

Quarter 2

No.	Course	Q.H.
ENG 1111	Fresh. Eng. II	4
BIO 1140	Bio. I	4
HSL 1223	Life Career Planning	4
INT 1100	Computer	4

Quarter 3

No.	Course	Q.H.
HSL 1281	Curr. Hlth. Issues	4
BIO 1141	Bio. II	4
ED _____	Fdn. El.	4
HSL _____	Prof. Skills	4
HSL 1222	Leisure Aw.	2

Second Year**Quarter 4**

No.	Course	Q.H.
ED 1102	Human Dev. I	4
HSL 1261	Anat./Phys. I	4
HSL 1221	Int. Rc. & Les. Serv.	3
_____	Science Elective	4

Quarter 5

No.	Course	Q.H.
ED 1103	Human Dev. II	4
HSL 1610	Anat./Phys. II	4
_____	Guided Elective	4
_____	Science Elective	4

Third Year**Quarter 6**

No.	Course	Q.H.
HSL 1408	Research Methods	4
HSL 1464	Prog. Plan. T/R	4
HSL 1463	Overview of Dis.	4
_____	Guided Elective	4

Quarter 7

No.	Course	Q.H.
HSL 1409	Research App.	4
HSL 1401	Program Planning	4
HSL _____	Dept. Elective	3
_____	Guided Elective	4

Fourth Year**Quarter 8**

No.	Course	Q.H.
HSL 1400	Group Dynamics	3
HSL 1406	Intnship. Sem.	1
HSL 1466	Fdn. Psych. Serv.	4
HSL _____	Dept. Elective	3
_____	Guided Elective	4

Quarter 9

No.	Course	Q.H.
HSL 1470	Intnshp. in Rec. & Les. Serv.	12

Fifth Year**Quarter 10**

No.	Course	Q.H.
HSL 1467	Soc. & Psy. Imp.	4
HSL _____	Dept. Elective	3
_____	Guided Elective	4
_____	Guided Elective	4

Quarter 11

No.	Course	Q.H.
HSL 1410	Senior Seminar	4
HSL 1462	Leisure Couns.	4
HSL _____	Dept. Elective	4
_____	Guided Elective	4

172 Q.H. = Minimum graduation requirement

Specimen Program in School and Community Health Education/ Athletic Training

First Year

Quarter 1			Quarter 2			Quarter 3		
No.	Course	Q.H.	No.	Course	Q.H.	No.	Course	Q.H.
CHM 1101	Chem. I	4	CHM 1102	Chem. II	4	MTH 1106	Math	4
ENG 1110	Fresh. Eng. I	4	BIO 1140	Bio. I	4	BIO 1141	Bio. II	4
ED 1100	Social Sci.	4	PSY 1111	PSYCH. I	4	ENG 1111	Fresh. Eng. II	4
HSL 1281	Curr. Hlth.	4	HSL 1280	Fnd. Hlth.	2	PSY 1112	PSYCH. II	4
HSL 1101	INT. SWIM.	1	HSL 1283	Intr. Saf.	2	HSL 1254	Fst. Aid	2
HSL 1133	PHY. COND.	1	HSL 1284	Inst. Res.	2			

Second Year

Quarter 4			Quarter 5		
No.	Course	Q.H.	No.	Course	Q.H.
HSL 1605	BASIC ATH. TR.	3	CRS 1313	INTRO. COUNS.	4
ED 1102	Human Dev.	4	ED 1103	Human Dev. II	4
HSL 1261	Anat./Phys. I	4	ED 1306	Meas. & Eval.	4
HSL 1286	Nutrition	4	HSL 1285	Hlth. Care/Yth.	4
HSL 1268	BASIC A.T. LAB	1	HSL 1132	WT. TRNG.	1

Third Year

Quarter 6			Quarter 7		
No.	Course	Q.H.	No.	Course	Q.H.
BIO 1190	Microbiology	4	HSL 1610	Anat./Phys. II	4
HSL 1260	MOTOR DEV.	4	HSL 1516	Drug Use/Abuse	4
HSL 1500	Mental Health	4	HSL 1502	Comm./Deg. Dis.	4
HSL 1611	KINESIOLOGY	4	ED 1307	ED. STAT.	4

Fourth Year

Quarter 8			Quarter 9		
No.	Course	Q.H.	No.	Course	Q.H.
HSL 1612	EXER. PHYS.	4	HSL 1613	EX. TEST/PRES.	3
HSL 1585	Teaching Proc.	4	HSL 1506	Comm. Health	4
HSL 1503	Human Sexuality	4	HSL 1507	Seminar I	2
HSL 1423	COMM. REC. MKTG.	4	HSL 1614	ELECTROCARD.	4
			HSL 1266	PHY. COND. PRG.	2
				Elective	4

Fifth Year

Quarter 10			Quarter 11		
No.	Course	Q.H.	No.	Course	Q.H.
HSL 1521	Practicum	12	HSL 1509	Org./Ad. Hlth. Ed.	4
			HSL 1510	Health Couns.	4
			HSL 1508	Seminar II	2
			HSL 1504	Longevity/Aging	4
				Elec. (if need)	4

178 Q.H. = Minimum graduation requirement

Note: Courses in capital letters indicate courses specific to concentration.

Specimen Program in Community Health Education/Cardiovascular Health and Exercise

First Year

Quarter 1			Quarter 2			Quarter 3		
No.	Course	Q.H.	No.	Course	Q.H.	No.	Course	Q.H.
CHM 1101	Chem. I	4	CHM 1102	Chem. II	4	MTH 1106	Math	4
ENG 1110	Fresh. Eng. I	4	BIO 1140	Bio. I	4	BIO 1141	Bio. II	4
ED 1100	Social Sci.	4	PSY 1111	PSYCH. I	4	ENG 1111	Fresh. Eng. II	4
HSL 1281	Curr. Hlth.	4	HSL 1280	Fnd. Hlth.	2	PSY 1112	PSYCH. II	4
HSL 1101	INT. SWIM.	1	HSL 1283	Intr. Saf.	2	HSL 1254	Fst. Aid	2
HSL 1133	PHY. COND.	1	HSL 1284	Inst. Res.	2			

Second Year

Quarter 4			Quarter 5		
No.	Course	Q.H.	No.	Course	Q.H.
HSL 1605	BASIC ATH. TR.	3	HSL 1313	INTRO. COUNS.	4
ED 1102	Human Dev.	4	ED 1103	Human Dev. II	4
HSL 1261	Anat./Phys. I	4	ED 1306	Meas. & Eval.	4
HSL 1286	Nutrition	4	HSL 1285	Hlth. Care/Yth.	4
HSL 1268	BASIC A.T. LAB	1	HSL 1132	WT. TRNG.	1

Third Year

Quarter 6			Quarter 7		
No.	Course	Q.H.	No.	Course	Q.H.
BIO 1190	Microbiology	4	HSL 1610	Anat./Phys. II	4
HSL 1260	MOTOR DEV.	4	HSL 1516	Drug Use/Abuse	4
HSL 1500	Mental Health	4	HSL 1502	Comm./Deg. Dis.	4
HSL 1611	KINESIOLOGY	4	ED 1307	ED. STAT.	4

Fourth Year

Quarter 8			Quarter 9		
No.	Course	Q.H.	No.	Course	Q.H.
HSL 1612	EXER. PHYS.	4	HSL 1613	EX. TEST/PRES.	4
HSL 1585	Teaching Proc.	4	HSL 1506	Comm. Health	4
HSL 1503	Human Sexuality	4	HSL 1507	Seminar I	2
HSL 1423	COMM. REC. MKTG.	4	HSL 1614	ELECTROCARD.	4
			HSL 1266	PHY. COND. PRG.	2
				Elective	4

Fifth Year

Quarter 10			Quarter 11		
No.	Course	Q.H.	No.	Course	Q.H.
HSL 1521	Practicum	12	HSL 1509	Org./Ad. Hlth. Ed.	4
			HSL 1510	Health Couns.	4
			HSL 1508	Seminar II	2
			HSL 1504	Longevity/Aging	4
				Elec. (if need)	4

183 Q.H. = Minimum graduation requirement

Note: Courses in capital letters indicate courses specific to concentration.

Specimen Program in School and Community Health Education

First Year

Quarter 1			Quarter 2			Quarter 3		
No.	Course	Q.H.	No.	Course	Q.H.	No.	Course	Q.H.
CHM 1101	Chem. I	4	CHM 1102	Chem. II	4	MTH 1106	Math	4
ENG 1110	Fresh. Eng. I	4	BIO 1140	Bio. I	4	BIO 1141	Bio. II	4
ED 1100	Social Sci.	4	ED 1300	Ed. Soc.	4	ENG 1111	Fresh. Eng. II	4
HSL 1281	Curr. Hlth.	4	HSL 1280	Fnd. Hlth.	2	HSL 1100	Skill El.	1
HSL 1254	First Aid	2	HSL 1283	Intr. Saf.	2	PSY 1111	Psych. I	4
			HSL 1284	Inst. Res.	2			

Second Year

Quarter 4			Quarter 5		
No.	Course	Q.H.	No.	Course	Q.H.
INT 1100	Computer	4	HSL 1285	Anat./Phys. I	4
ED 1102	Human Dev.	4	ED 1103	Human Dev. II	4
HSL 1261	Anat./Phys. I	4	ED 1306	Meas. and Ev.	4
PSY 1112	Psychology II	4	HSL 1286	Nutrition	4
HSL _____	Skill Elective	1			

Third Year

Quarter 6			Quarter 7		
No.	Course	Q.H.	No.	Course	Q.H.
BIO 1190	Microbiology	4	HSL 1610	Anat./Phys. II	4
ED 1104	Anal. Inst. Proc.	4	HSL 1516	Drug Use/Abuse	4
HSL 1500	Mental Health	4	HSL 1502	Comm./Deg. Dis.	4
	Elective	4		Elective	4

Fourth Year

Quarter 8			Quarter 9		
No.	Course	Q.H.	No.	Course	Q.H.
CRS 1200	Intro. Spec. Ed.	4	HSL 1504	Longevity/Aging	4
HSL 1585	Teaching Proc.	4	HSL 1506	Comm. Health	4
HSL 1503	Human Sexuality	4	HSL 1507	Seminar I	2
	Elective	4		Electives (2)	8

Fifth Year

Quarter 10			Quarter 11		
No.	Course	Q.H.	No.	Course	Q.H.
HSL 1520	Student Teaching	12	HSL 1509	Org./Ad. Hlth. Ed.	4
	or		HSL 1510	Health Couns.	4
HSL 1521	Practicum	12	HSL 1508	Seminar II	2
			ED 13	(12,13,14) El.	4

178 Q.H. = Minimum graduation requirement

Specimen Program in Physical Education/Dance Teacher Certification

First Year

Quarter 1			Quarter 2			Quarter 3		
No.	Course	Q.H.	No.	Course	Q.H.	No.	Course	Q.H.
INT 1100	Int. Th.	4	ENG 1111	Fresh. Eng. II	4	MTH 1106	Math.	4
ENG 1110	Fresh. Eng. I	4	HSL 1256	L/C Plan	3	HSL 1253	Group D.	3
ED 1100	Soc. Sci.	4	ED 1102	Hum. Dev. I	4	HSL 1254	First Aid	2
HSL 1630	Asp. Dnce.	3		Elective	4		Elective	4
HSL 1314	Mv. Fund	1	HSL 1159	Jazz Dance I	1	HSL 1154	Mod. II	1
HSL 1156	Ballet I	1	HSL 1153	Modern I	1	HSL 1165	Dance Improvisation I	1

Second Year

Quarter 4			Quarter 5		
No.	Course	Q.H.	No.	Course	Q.H.
HSL 1260	Motor Dev.	4	HSL 1100	Computer	4
HSL 1261	Anat./Phys. I	4	HSL 1103	Human Dev. II	4
HSL 1252	Dance Comp. I	3	HSL 1621	Dance/Culture	4
HSL 1250	Creat. Dnc. El. or	2	HSL 1272	Dance Comp. II	3
HSL 1251	Creat. Dnc. Sec.	2	HSL 1158	Ballet III	1
HSL 1162	Rhythmic Analy.	1	HSL 1155	Mod. Dance III	1
HSL 1157	Ballet II	1	HSL 1868	Directed Tchg. I	1
HSL 1160	Jazz Dance II	1			

Third Year

Quarter 6			Quarter 7		
No.	Course	Q.H.	No.	Course	Q.H.
PSY 1111	Fnd. of Psy.	4	—	Humanities Elective	4
HSL 1611	Kinesiology	4	HSL 1606	Motor Learning	4
HSL 1615	Crit. Teaching	4	—	Elective	4
HSL 1634	Laban Move. An.	2	HSL 1626	Measurement & Eval.	4
HSL 1325	Reh. & Performance	1	HSL —	Tech./Skill El.	1
HSL 1152	Folk & Sq. Dance	1	HSL 1161	Jazz Dance III	1
HSL 1321	Modern Dance IV	1			

Fourth Year

Quarter 8			Quarter 9		
No.	Course	Q.H.	No.	Course	Q.H.
HSL 1463	Overview Dis.	4	HSL 1605	Basic A.T.	3
—	Elective	4	HSL 1616	Curric. Dev.	3
—	Elective	4	—	Elective	4
HSL 1632	Dance 20th C.	4	—	Elective	4
HSL 1104	Ballroom Dance	1	HSL —	Tech./Skill El.	1
HSL 1869	Dir. Teaching II	1	HSL 1267	Tchg. Fk./ Sq./Blrm. Dnc.	2

Fifth Year

Quarter 10			Quarter 11		
No.	Course	Q.H.	No.	Course	Q.H.
HSL 1623	Sprvds. St. Tch.	12	—	Humanities El.	4
			HSL 1865	Special Prob.	3
			—	Elective	4
			—	Elective	4

180 Q.H. = Minimum graduation requirement

Specimen Program in Physical Therapy**First Year**

Quarter 1			Quarter 2			Quarter 3		
No.	Course	Q.H.	No.	Course	Q.H.	No.	Course	Q.H.
PSY 1111	Fnd. of Psych. I	4	MTH 1107	Func. & Basic Calc.	4	CHM 1112	Gen. Chem.	5
MTH 1106	Fund. of Math.	4	CHM 1111	Gen. Chem.	5	BIO 1141	Bas. Ani. Bio II	4
BIO 1140	Bas. Ani. Bio. I	4	ENG 1110	Fresh. Eng. I	4	ENG 1111	Fresh. Eng. II	4

Quarter 1, 2, or 3

No.	Course	Q.H.
HSL 1254	First Aid	2
PTH 1114	In. Phys. Thpy. I	2
HSL 1281	Cur. Is. in Hlth.	4

Second Year

Quarter 4			Quarter 5		
No.	Course	Q.H.	No.	Course	Q.H.
PHY 1201	Phys. Life Sci. I	4	PHY 1202	Phys. Life Sci. II	4
PHY 1501	Phys. Lab: L.S. I	1	BIO 1254	Hum. Physiology II	4
BIO 1253	Hum. Physiology I	4	BIO 1255	Hum. Anat.	4
HSL 1260	Prpc. Motor. Dev.	4	PSY 1112	Fnd. Psych. II	4
PTH 1114	In. Phys. Thpy. I (transfers only)	2	PTH 1115	In. Phys. Thpy. II	2
—	Elective	4			

Students should recognize that they must satisfy computer literacy requirement either through INT 1100 or through competency exam before progressing to the middler year.

Third Year

Quarter 6			Quarter 7		
No.	Course	Q.H.	No.	Course	Q.H.
PTH 1310	Clin. Gross Anat.	6	PTH 1330	Clin. Kinesiology	5
PTH 1315	Phys. for Ph. Thr.	5	PTH 1335	Phys. Thrpy. II	3
PTH 1320	Phys. Thrpy. I	2	PTH 1340	Phys. Thrpy. III	4
PTH 1325	Clin. Medicine I	4	PTH 1345	Clin. Medicine II	3
			PTH 1352	Psyc. Asp. of Ill.	3

Fourth Year

Quarter 8			Quarter 9		
No.	Course	Q.H.	No.	Course	Q.H.
PTH 1355	Phys. Thrpy. IV	3	PTH 1375	Phys. Thrpy. VII	2
PTH 1360	Phys. Thrpy. V	4	PTH 1380	Super Clin. Educ.	5
PTH 1366	Neuroanatomy	5	PTH 1385	Clin. Medicine III	3
PTH 1370	Clin. Seminar	2	PTH 1390	Phys. Thrpy. VI	3
			PTH 1395	Phys. Thrpy. V cont.	1

Specimen Program in Human Services

Quarter 1 ED1100, Education and Social Science, or SOC1100, Introduction to Sociology; ENG1110, Freshman English I; POL 1111, Introduction to American Government; college distribution requirement.

Quarter 2 ED1302, Introduction to Human Services Professions; ED 1102, Human Development I or PSY1111, Foundations of Psychology I; ENG1111, Freshman English II; designated elective.

Quarter 3 ED1103, Human Development II, or PSY1112, Foundations of Psychology II; ECN1116, Principles of Microeconomics, or another approved economics course; college distribution requirement; Human Services specialization course.

Bachelor of Science *Prerequisite Courses:* ED1100, Education and Social Science, or SOC1100, Introduction to Sociology; ED1302, Introduction to Human Services Professions; ED1102, Human Development I, or PSY III, Foundations of Psychology I; ED1103 Human Development II, or PSY1112, Foundations of Psychology II; POL1111, Introduction to American Government; ECN1116, Principles of Microeconomics, or another approved economics course.

Core Courses: ED1307, Introduction to Education Statistics, or SOC1320, Introduction to Statistical Analysis, or PSY1211, Statistics in Behavioral Science I; SOC1324, Human Services Research and Evaluation, or PSY1511, Experimental Design in Psychology, or SOC1321, Research Methods I; SOC1240, Sociology of Human Services Organizations; PSY1272, Personality I; PSY 1373, Abnormal Psychology; ED1300, Education and Psychosocial Development; ED1301; Education Applications of Social Psychology, or ED1317, Seminar on Group Process, or SPC1330, Interpersonal Communication I, or SPC1338, Group Discussion; CRS1310, Intervention Strategies; INT1333, Senior Seminar in Human Services.

Specified Electives: Three courses selected from a selected list relating to poverty and welfare, race relations, and special needs.

Human Services Fieldwork: INT1330, Field Experience in Human Services I; INT1331, Field Experience in Human Services II.

Human Services Specialization: Five courses in an area of human services, selected in consultation with an academic advisor.

University and College requirements: Computer literacy requirement; Freshman English I and II; Middler Year Writing Requirement; distribution requirements of four math/science and four humanities courses; eleven Boston-Bouv  College courses taken in the general area of education (including required courses).

Fifth Year

Quarter 10			Quarter 11		
No.	Course	Q.H.	No.	Course	Q.H.
PTH 1400	Admin.	4	PTH 1415	Superv. Clin. Ed. II	
PTH 1405	Res. Phys. Thrpy.	4			
PTH 1411	Phys. Thrpy. VIII	4			
_____	Elective	4			
_____	Elective	4			

In Quarters 10 and 11 the class is divided in half, with half of the class on campus and half in Supervised Clinical Education II for one quarter each.

Quarter 12		
No.	Course	Q.H.
PTH 1420	PT Hlth. Care Sys.	3
PTH 1426	Fn. As. Eld. Cli.	3
PTH 1450	Invest. Studies	6
_____	Elective	4

Specimen Programs in Teacher Preparation**General Requirements:**

Students must complete the following requirements to earn a Bachelor of Science degree in Education:

1. Distribution requirements with a minimum of sixteen quarter hours each of these areas: humanities, mathematics/sciences, and social sciences.
2. Major course requirements are listed on pages 00-00. (In addition to those courses required of all Elementary Education majors, students in this major must take designated courses in one area of emphasis chosen from the humanities, social sciences, mathematics/sciences, and language/reading or a minor in special education.)
3. Designated electives offered by the College of Arts and Sciences and the Boston Bouvé College of Human Development Professions. These electives, which depend on the particular program of study, are in the areas of English, history, drama/speech, political science, economics, earth science, and the foundations of education. There is no language requirement.

As early as possible students should discuss their curriculum questions and academic needs with a representative of the Dean's Office or a faculty advisor.

Specimen Program In Early Childhood Education (K-3)**Freshman Year (48 Q.H.)**

HST 1101	Western Civ. I
ENG 1110	Freshman English I
ED 1100	Education and Social Science
ED 1101	Education for the Future
GEO _____	Earth Science (Elective)
HST 1102	Western Civ. II
ECN 1115	Economics
GEO _____	Earth Science (Elective)
POL _____	Political Science (Elective)
ED 1105	Day Care and Nursery Schools
ENG 1111	Freshman English II
ENG _____	English Elective

Sophomore Year (32 Q.H.)

ED 1104	Analysis of the Instructional Process
ED 1102	Human Development and LRN. I
CRS 1200	Introduction to Special Education
HSL 1265	Early Childhood Development
SLA 1101	Introduction to Speech and Hearing
ED 1106	Creative Expression in Children
ENG _____	English Elective
_____	Humanities Elective

Middler Year (34 Q.H.)

ED 1400	Fundamentals of Reading I
ED 1408	Elementary School Math
ED 1405	Literature and Learning Material
ED 1409	Elementary School Science
ED 1402	Fundamentals of Reading II (6 Q.H.)
ED ____	Educational Humanities Elective
HST ____	History Elective
_____	Elective

Senior Year (32 Q.H.)

_____	Drama or Speech Elective
SLA 1300	Semantics and Syntax
ED 1417	Student Teaching (8 Q.H.)
HST ____	History Elective
_____	Math/Science Elective
_____	Elective
_____	Elective

Junior Year (31 Q.H.)

ED 1406	Elementary Education Curriculum I
ED 1407	Elementary Education Curriculum II
ED 1306	Measurement and Evaluation
COP 1353	Professional Development (1 Q.H.)
ED 1304	Language and Cognition
ED 1318	Seminar in Early Childhood
ED 1416	Field Placement (2 Q.H.)
_____	Math/Science Elective
POL ____	Political Science Elective

177 Q.H. = Minimum graduation requirement

Specimen Program in Elementary Education (Humanities Emphasis)

Freshman Year (48 Q.H.)

HST 1101	Western Civ. I
ENG 1110	Freshman English I
ED 1100	Education and Social Science
ED 1101	Education for the Future
GEO ____	Earth Science Elective
HST 1102	Western Civ. II
ECN 1115	Economics
_____	Computer Science Elective
POL ____	Political Science Elective
ENG 1111	Freshman English II
ENG ____	English Elective
_____	Elective

Sophomore Year (32 Q.H.)

ED 1104	Analysis of the Instructional Process
ED 1102	Human Development I
CRS 1200	Introduction to Special Education
ED 1103	Human Development II
ENG ____	English Elective
_____	Humanities Elective
HST ____	History Elective
ED ____	Educational Sociology Elective

Middler Year (34 Q.H.)

ED 1400	Fundamentals of Reading I
ED 1408	Elementary School Math
ED 1405	Literature and Learning Materials
ED 1409	Elementary School Science
ED 1402	Fundamentals of Reading II (6 Q.H.)
ED ____	Educational Humanities Elective
POL ____	Political Science Elective
_____	Humanities Elective

Junior Year (34 Q.H.)

ED 1406	Elementary Education Curriculum I
ED 1407	Elementary Education Curriculum II
ED 1306	Measurement and Evaluation
COP 1353	Professional Development (1 Q.H.)
HSL 1151	Movement Education (1 Q.H.)
HST ____	History Elective
_____	Drama
_____	or
_____	Speech Elective
_____	Math/Science Elective
_____	Humanities Elective
_____	Humanities Elective

Senior Year (32 Q.H.)

ED 1417	Student Teaching (8 Q.H.)
_____	Math/Science Elective
_____	Humanities Elective
_____	Humanities Elective
_____	Humanities Elective
_____	Humanities Elective
_____	Elective

180 Q.H. = Minimum graduation requirement

Specimen Program in Elementary Education (Language/Reading Emphasis)

Freshman Year (48 Q.H.)

HST 1101	Western Civ. I
ENG 1110	Freshman English I
ED 1100	Education and Social Science
ED 1101	Education for the Future
GEO _____	Earth Science Elective
HST 1102	Western Civ. II
ECN 1115	Economics
_____	Computer Science Elective
POL _____	Political Science Elective
ENG 1111	Freshman English II
ENG _____	English Elective
_____	Elective

Junior Year (34 Q.H.)

ED 1406	Elementary Education Curriculum I
ED 1407	Elementary Education Curriculum II
ED 1306	Measurement and Evaluation
COP 1353	Professional Development (1 Q.H.)
HSL 1151	Movement Education (1 Q.H.)
HST _____	History Elective
_____	Drama
_____	or
_____	Speech Elective
ED 1403	Remedial Reading
ED 1404	Linguistics and Reading
_____	Math/Science Elective

Sophomore Year (32 Q.H.)

ED 1104	Analysis of the Instructional Process
ED 1102	Human Development I
CRS 1200	Introduction to Special Education
ED 1103	Human Development II
ENG _____	English Elective
_____	Humanities Elective
HST _____	History Elective
ED _____	Educational Sociology Elective

Senior Year (32 Q.H.)

ED 1417	Student Teaching (8 Q.H.)
_____	Language/Reading
_____	Language/Reading
_____	Math/Science Elective
_____	Language/Reading Elective
_____	Language/Reading Elective
_____	Elective

Middler Year (34 Q.H.)

ED 1400	Fundamentals of Reading I
ED 1408	Elementary School Math
ED 1405	Literature and Learning Materials
ED 1409	Elementary School Science
ED 1402	Fundamentals of Reading II (6 Q.H.)
ED _____	Educational Humanities Elective
POL _____	Political Science Elective
_____	Elective

180 Q.H. = Minimum graduation requirement

**Specimen Program in Elementary Education
(Social Sciences Emphasis)**

Freshman Year (48 Q.H.)

HST 1101	Western Civ. I
ENG 1110	Freshman English I
ED 1100	Education and Social Science
ED 1101	Education for the Future
GEO ____	Earth Science Elective
HST 1102	Western Civ. II
ECN 1115	Economics
_____	Computer Science Elective
POL ____	Political Science Elective
ENG 1111	Freshman English II
ENG ____	English Elective
_____	Elective

Junior Year (34 Q.H.)

ED 1406	Elementary Education Curriculum I
ED 1407	Elementary Education Curriculum II
ED 1306	Measurement and Evaluation
COP 1353	Professional Development (1 Q.H.)
HSL 1151	Movement Education (1 Q.H.)
HST ____	History Elective
_____	Drama
_____	or
_____	Speech Elective
_____	Math/Science Elective
_____	Social Science Elective
_____	Social Science Elective

Sophomore Year (32 Q.H.)

ED 1104	Analysis of the Instructional Process
ED 1102	Human Development I
CRS 1200	Introduction to Special Education
ED 1103	Human Development II
ENG ____	English Elective
_____	Humanities Elective
HST ____	History Elective
_____	Educational Sociology Elective

Senior Year (32 Q.H.)

ED 1417	Student teaching (8 Q.H.)
_____	Math/Science Elective
_____	Social Science Elective
_____	Social Science Elective
_____	Social Science Elective
_____	Social Science Elective
_____	Elective

Middler Year (34 Q.H.)

ED 1400	Fundamentals of Reading I
ED 1408	Elementary School Math
ED 1405	Literature and Learning Materials
ED 1409	Elementary School Science
ED 1402	Fundamentals of Reading II (6 Q.H.)
ED ____	Educational Humanities Elective
POL ____	Political Science Elective
_____	Social Science Elective

180 Q.H. = Minimum graduation requirement

**Specimen Program in Elementary Education
(Minor in Special Education)**

Freshman Year (48 Q.H.)

HST 1101	Western Civ. I
ENG 1110	Freshman English I
ED 1100	Education and Social Science
ED 1101	Education for the Future
GEO ____	Earth Science Elective
HST 1102	Western Civ. II
ECN 1115	Economics
_____	Computer Science Elective
POL ____	Political Science Elective
ENG 1111	Freshman English II
ENG ____	English Elective
ED ____	Educational Sociology Elective

Sophomore Year (32 Q.H.)

ED 1104	Analysis of the Instructional Process
ED 1102	Human Development I
CRS 1200	Introduction to Special Education
ED 1103	Human Development II
ENG ____	English Elective
SLA 1101	Introduction Speech and Hearing
ED 1405	Literature and Learning Materials
_____	Humanities Elective

Middler Year (34 Q.H.)

ED 1400	Fundamentals of Reading I
ED 1408	Elementary School Math
CRS 1304	Soc-Psych Dynamics Family Life
ED 1402	Fundamentals of Reading II
ED 1409	Elementary School Science
CRS 1305	Psych of Mentally Retarded
CRS 1300	Intro Learning Disabilities
PSY 1373	Abnormal Psych I

Senior Year (32 Q.H.)

ED 1417	Student Teaching (8 Q.H.)
ED 1404	Linguistics and Reading
_____	History Elective
_____	Educational Humanities Elective
_____	Math/Sci Elective
CRS 1317	Special Education Practicum (8 Q.H.)

Junior Year (34 Q.H.)

ED 1406	Elementary Ed Curriculum I
ED 1403	Remedial Reading
CRS 1301	Diagnosis in Special Ed
COP 1353	Professional Development (1 Q.H.)
ED 1407	Elementary Ed Curriculum II
ED 1306	Measurement and Evaluation
HSL 1151	Movement Education (1 Q.H.)
CRS 1030	Intro Emotional Disturbance
CRS 1302	Methods/Materials in Special Ed
_____	Drama or Speech Elective

180 Q.H. = Minimum graduation requirement

Specimen Program in Speech and Hearing

First Year

Quarter 1			Quarter 2			Quarter 3		
No.	Course	Q.H.	No.	Course	Q.H.	No.	Course	Q.H.
ENG 1110	Fresh. English I	4	ENG 1111	Fresh. Eng. II	4	SLA 1101	Intro. Speech	4
ED 1100	Ed. & Soc. Sci.	4	SLA 1100	Bs. Man. Comm.	4	_____	Elective*	4
INT 1100	Beg. Comp. Use	4	_____	Elective*	4	_____	Elective*	4
_____	Elective	4	_____	Elective*	4	_____	Elective*	4

Second Year

Quarter 4			Quarter 5		
No.	Course	Q.H.	No.	Course	Q.H.
ED 1307	Intro. Ed. Stat.	4	ED 1102	Hum. Dev. I	4
SLA 1200	Hearing Sci.	4	SLA 1201	Anat. Voc. Mech.	4
CRS 1200	Intro. Spec. Ed.	4	_____	Elective*	4
_____	Elective*	4	_____	Elective*	4

Third Year

Quarter 6			Quarter 8			Quarter 9		
No.	Course	Q.H.	No.	Course	Q.H.	No.	Course	Q.H.
SLA 1301	Dev. Phonology	4	SLA 1400	Speech Sci.	4	SLA 1402	Diagnostic Tech.	4
PSY 1272	Personality I	4	ED 1400	Fundn. Read. I	4	SLA 1403	Orient. Clin. Prac.	4
SLA 1300	Dev. Semantics	4	SLA 1401	Fluency Dis.	4	SLA 1404	Intro. Psychoacousts.	4
BIO 1181	Hum. Orgnsm.	4	COP 1353	Prof. Dev.	1	_____	Elective*	4
			_____	Elective*	4			

Fifth Year

Quarter 10			Quarter 10a			Quarter 11		
No.	Course	Q.H.	No.	Course	Q.H.	No.	Course	Q.H.
PSY 1373	Abn. Psych.	4	SLA 1501	Clin. Prac.	8	PSY 1374	Abn. Psych. II	4
SLA 1500	Psychoacous. Lab.	4					Elective*	4
	Elective*	4						
	Elective*	4						

177 Q.H. = Minimum graduation requirement.

*Electives must include: 8 Q.H. in Ed. Soc.; 4 Q.H. in Ed. Psych.; 16 Q.H. in Liberal Arts Humanities; 4 Q.H. in Ed.; and 8 Q.H. in Lib. Arts Math/Sci.

College of Business Administration

Specimen Program for First Three Quarters

The courses taken in the first three quarters are the same for all concentrations.

Quarter 1			Quarter 2			Quarter 3		
No.	Course	Q.H.	No.	Course	Q.H.	No.	Course	Q.H.
ACC 1111	Acct. Prin. I	4	ACC 1112	Acct. Prin. II or	4	MGT 1415	Intro. Busn.	4
MTH 1113	Math. Busnes. or	4	MTH 1113	Math. Busnes. or	4		Lib. Electives	8
MTH 1114	Fund. Math.	4	MTH 1114	Fund. Math	4		Bus. Elective	4
ECN 1105	Econ. Princ.	4		Lib. Elective	4			
ENG 1110	Fresh. Eng. I	4	ECN 1106	Econ. Prin.	4			
	A & S Elective		ENG 1111	Fresh. Eng. II	4			

During the five-year program at least one elective must be taken from the approved International elective list.

Accounting

Quarter 4	MSC 1200, Business Statistics 1; MSC 1226, Introduction to Data Processing; two nonbusiness electives.
Quarter 5	MSC 1201, Business Statistics 2; three nonbusiness electives.
Quarter 6	ACC 1331, Intermediate Accounting 1; HRM 1431, Complex Organizations; MKT 1435, Introduction to Marketing; MSC 1433, Business Modeling.
Quarter 7	ACC 1332, Intermediate Accounting 2; ACC 1339, Cost Accounting 1; HRM 1432, Organizational Behavior; FIN 1438, Introduction to Finance.
Quarter 8	ACC 1340, Cost Accounting 2; ACC 1343, Intermediate Accounting 3; non-business elective; open elective.
Quarter 9	MGT 1446, Managing Social Issues; ACC 1348, Accounting Theory and Practice, or ACC 1349, Accounting Planning and Control; MSC 1441, Operations Management; open elective.
Quarter 10	MGT 1450, Business Policy; three open electives.
Quarter 11	Three open electives; nonbusiness elective.

Entrepreneurship and New Venture Management

Quarter 4	MSC 1200, Business Statistics 1, MSC 1226, Introduction to Data Processing; two nonbusiness electives.
Quarter 5	MSC 1201, Business Statistics 2; three nonbusiness electives.
Quarter 6	HRM 1431, Complex Organizations; ENT 1350, Small Business Management; MKT 1435, Introduction to Marketing; MSC 1433, Business Modeling.
Quarter 7	HRM 1432, Organizational Behavior; FIN 1438, Introduction to Finance; two open electives.
Quarter 8	ENT 1344, Operations Analysis and Venture Capital; two nonbusiness electives; open elective.

Quarter 9	FIN 1770, Small Business Finance; MGT 1446, Managing Social Issues; MSC 1441, Operations Management; open elective.
Quarter 10	MGT 1450, Business Policy; ENT 1352, New Venture Creation; nonbusiness elective; open elective.
Quarter 11	ENT 1358, Small Business Institute Field Project; two open electives.

Finance and Insurance

Quarter 4	MSC 1200, Business Statistics 1; MSC 1226, Introduction to Data Processing; two nonbusiness electives.
Quarter 5	MSC 1201, Business Statistics 2; three nonbusiness electives.
Quarter 6	FIN 1438, Introduction to Finance; FIN 1333, Money and Business Activity; HRM 1431, Complex Organizations; nonbusiness elective.
Quarter 7	FIN 1335, Managerial Finance; MKT 1435, Introduction to Marketing; HRM 1432, Organizational Behavior; MSC 1433, Business Modeling.
Quarter 8	FIN 1346, Investment Management; Finance elective; MSC 1441, Operations Management; open elective.
Quarter 9	MGT 1446, Managing Social Issues; Finance elective; nonbusiness elective; open elective.
Quarter 10	MGT 1450, Business Policy; Finance elective; two open electives.
Quarter 11	Four open electives.

Nonconcentration

Quarter 4	MSC 1200, Business Statistics 1; three nonbusiness electives.
Quarter 5	MSC 1201, Business Statistics 2; MSC 1226, Introduction to Data Processing; two nonbusiness electives.
Quarter 6	HRM 1431, Complex Organizations; FIN 1438, Introduction to Finance; MSC 1433, Business Modeling; open elective.
Quarter 7	HRM 1432, Organizational Behavior; MKT 1435, Introduction to Marketing; business elective; open elective.
Quarter 8	MSC 1441, Operations Management; two business electives; open elective.
Quarter 9	MGT 1446, Managing Social Issues; business elective; nonbusiness elective; open elective.
Quarter 10	MGT 1450, Business Policy; business elective; nonbusiness elective; open elective.
Quarter 11	Business elective; three open electives.

Human Resources Management

Quarter 4	MSC 1200, Business Statistics 1; MSC 1226, Introduction to Data Processing; two nonbusiness electives.
Quarter 5	MSC 1201, Business Statistics 2; three nonbusiness electives.
Quarter 6	HRM 1431, Complex Organizations; MKT 1435, Introduction to Marketing; MSC 1433, Business Modeling; open elective.
Quarter 7	HRM 1332, People and Productivity; HRM 1432, Organizational Behavior; FIN 1438, Introduction to Finance; open elective.
Quarter 8	HRM 1348; Reward Systems; HRM 1439, Assessment of Prospective Employees; nonbusiness elective; open elective.
Quarter 9	MGT 1446, Managing Social Issues; MSC 1441, Operations Management; Human Resources Management elective; open elective.
Quarter 10	HRM 1345, Contemporary Labor Issues; MGT 1450, Business Policy; Human Resources Management elective; open elective.
Quarter 11	Nonbusiness elective; three open electives.

International Business Administration

Quarter 4	MSC 1200, Business Statistics 1; three nonbusiness electives.
Quarter 5	MSC 1201, Business Statistics 2; two nonbusiness electives.
Quarter 6	HRM 1431, Complex Organizations; INB 1338, Introduction to International Business; FIN 1438, Introduction to Finance; open elective.
Quarter 7	HRM 1432, Organizational Behavior; MKT 1435, Introduction to Marketing; MSC 1433, Business Modeling; open elective.
Quarter 8	MSC 1441, Operations Management; business elective; International nonbusiness elective; open elective.
Quarter 9	MGT 1446, Managing Social Issues; International nonbusiness elective; two open electives.
Quarter 10	MGT 1450, Business Policy; International nonbusiness elective; two open electives.
Quarter 11	INB 1352; Seminar in International Business; International business elective; two open electives.

Management

Quarter 4	MSC 1200, Business Statistics 1; three nonbusiness electives.
Quarter 5	MSC 1201, Business Statistics 2; MSC 1226, Introduction to Data Processing; two nonbusiness electives.
Quarter 6	FIN 1438, Introduction to Finance; HRM 1431, Complex Organizations; MSC 1433, Business Modeling; open elective.
Quarter 7	MKT 1435, Introduction to Marketing; HRM 1432, Organizational Behavior; ACC 1330, Cost Accounting; HRM 1332, People and Productivity.
Quarter 8	MGT 1345, Legal Aspects of Business; MSC 1441, Operations Management; business elective; open elective.
Quarter 9	MGT 1446, Managing Social Issues; business elective; nonbusiness elective; open elective.
Quarter 10	MGT 1450, Business Policy; nonbusiness elective; two open electives.
Quarter 11	Business elective; three open electives.

Marketing

Quarter 4	MSC 1200, Business Statistics 1; MSC 1226, Introduction to Data Processing; two nonbusiness electives.
Quarter 5	MSC 1201, Business Statistics 2; three nonbusiness electives.
Quarter 6	MKT 1435, Introduction to Marketing; HRM 1431, Complex Organizations; nonbusiness elective; open elective.
Quarter 7	FIN 1438, Introduction to Finance; HRM 1432, Organizational Behavior; MKT 1331, Marketing Management; MSC 1433, Business Modeling.
Quarter 8	MKT 1341, Marketing Research; Marketing elective; nonbusiness elective; open elective.
Quarter 9	MGT 1446, Managing Social Issues; MSC 1441, Operations Management; Marketing elective; open elective.
Quarter 10	MKT 1351, Competitive Strategies; MGT 1450, Business Policy; two open electives.
Quarter 11	Marketing elective; three open electives.

Transportation and Physical Distribution Management

Quarter 4	MSC 1200, Business Statistics 1; three nonbusiness electives.
Quarter 5	MSC 1201, Business Statistics 2; MSC 1226, Introduction to Data Processing; two nonbusiness electives.
Quarter 6	HRM 1431, Complex Organizations; FIN 1438, Introduction to Finance; TRN 1333, Introduction to Transportation; open elective.

Quarter 7	HRM 1432, Organizational Behavior; Transportation elective; MKT 1435, Introduction to Marketing; TRN 1335, Current Issues in Transportation Policy; MSC 1433, Business Modeling.
Quarter 8	MSC 1441, Operations Management; Transportation elective; nonbusiness elective; open elective.
Quarter 9	MGT 1446, Managing Social Issues; TRN 1344, Physical Distribution Management; nonbusiness elective; open elective.
Quarter 10	MGT 1450, Business Policy; Transportation elective; two open electives.
Quarter 11	TRN 1353, Seminar in Transportation; three open electives.

College of Computer Science

Specimen Program in Computer Science

First Year

Quarter 1			Quarter 2			Quarter 3		
No.	Course	Q.H.	No.	Course	Q.H.	No.	Course	Q.H.
COM 1100	Fund. Comp. Sci.	4	COM 1101	Algor. & Data Struct. I	4	MTH 1125	Calculus III	4
MTH 1123	Calculus I	4	MTH 1124	Calculus II	4	PHY 1241	Physics I	4
ENG 1110	Fresh. Engl. I	4	MTH 1137	Discr. Math I	4	COM 1201	Algor. & Data Struct. II	4
HST 1101	Western Civ.	4	HST 1102	Western Civ.	4	ENG 1111	Fresh. Engl. II	4
			COM 1113	COBOL Lab or	1	COM 1110	FORTTRAN Lab	1
			COM 1110	FORTTRAN Lab	1	PHY 1521	Physics Lab I	1

Second Year

Quarter 4			Quarter 5		
No.	Course	Q.H.	No.	Course	Q.H.
PHY 1242	Physics II	4	PHY 1243	Physics III	4
COM 1130	Comp Org & Prog I	4	COM 1131	Comp Org & Prog II	4
MTH 1223	Calculus IV	4	MTH 1237	Discrete Math II	4
PHY 1522	Physics Lab II	1	COM 1114	C. Lang. Lab	1
	Elctv/Subarea (1)	4		Elctv/Subarea (2)	4

Third Year

Quarter 6			Quarter 7		
No.	Course	Q.H.	No.	Course	Q.H.
ECE 1191	Intro Digital Comp I	4	ECE 1192	Intro Digital Comp II	4
	Elctv/Subarea (3)	4	ENG 1125	Tech. Writing I	4
COM 1102	Funct Prog & Appl	4	COM 1205	Softwr Dsgn & Dev	4
COM 1310*	File Struct	4	COM 1350	Automata Lang	4

Fourth Year

Quarter 8			Quarter 9		
No.	Course	Q.H.	No.	Course	Q.H.
COM 1330*	Systems Prog	4	SOC 1485	Computers & Soc.	4
MTH 1301	Linear Algebra	4	MTH 1387	Probability	4
	C.S. Elective (1)	4		C.S. Elective (2)	4
	Elctv/Subarea (4)	4		Elctv/Subarea (5)	4

Fifth Year

Quarter 10			Quarter 11		
No.	Course	Q.H.	No.	Course	Q.H.
COM _____	C.S. Elective (3)	4	COM _____	C.S. Elective (5)	4
_____	Elctv/Subarea (4)	4	COM 1620	C.S. Seminar	1
_____	Elctv/Subarea (6)	4	_____	Elctv/Subarea (8)	4
_____	Elctv/Subarea (7)	4	_____	Elctv/Subarea (9)	4
			_____	Elctv/Subarea (10)	4

Note: Three of the Computer Science electives must form a complete track.

*A student wishing to complete the systems track may reverse the order of these two courses.

Computer Science Major Requirements Checklist

Computer Science

Level I			Level II (select eight courses, including at least one complete track)		
No.	Course	Q.H.	No.	Course	Q.H.
COM 1100	Fund Comp. Sci	4	Data Base Track		
COM 1101	Algor. & Data Struc I	4	COM 1310	File Structures	4
COM 1102	Funct Prog & Appl	4	COM 1315	Data Base Mngmt. I	4
COM 1110	FORTTRAN Lab	1	COM 1316	Data Base Mngmt. II	4
COM 1111	DCL Lab	1	Systems Track		
COM 1113	COBOL Lab	1	COM 1330	Systems Prgrmmg.	4
COM 1114	C Lab	1	COM 1335	Operating Systems I	4
COM 1201	Algor & Data Struc II	4	COM 1336	Operating Systems II	4
COM 1205	Software Design	4	Languages Track		
COM 1130	Comp Org & Prog I	4	COM 1350	Automata & Form. Lan.	4
COM 1131	Comp Org & Prog II	4	COM 1355	Compiler Design I	4
			COM 1356	Compiler Design II	4
			Electives		
			COM 1358	Anal. of Prog. Lang.	4
			COM 1370	Computer Graphics	4
			COM 1390	Anlys. of Algorithms	4
			COM 1410	Artificl. Intelligence	4
			COM 1420	Interactive Systems	4
			Seminar (To be taken during senior year)		
			COM 1620	Computer Sci. Sem.	1

Mathematics

Level I			Level II		
No.	Course	Q.H.	No.	Course	Q.H.
MTH 1123	Calculus I	4	MTH 1387	Probability	4
MTH 1124	Calculus II	4	MTH 1301	Linear Algebra	4
MTH 1125	Calculus III	4			
MTH 1223	Calculus IV	4			
MTH 1137	Discrete Math. I	4			
MTH 1237	Discrete Math. II	4			

Physics

Level II		
No.	Course	Q.H.
PHY 1241	Physics I	4
PHY 1242	Physics II	4
PHY 1243	Physics III	4

Electrical Engineering

Level II		
No.	Course	Q.H.
ECE 1191	Intro Digital Comp I	4
ECE 1192	Intro Digital Comp II	4

Other Subject Areas

Level II		
No.	Course	Q.H.
ENG 1110	Freshman Eng. I	4
ENG 1111	Freshman Eng. II	4
ENG 1125	Technical Writing	4
HST 1101	Western Civ. I	4
HST 1102	Western Civ. II	4
SOC 1485	Computers & Soc.	4

Electives (total 20 Q.H.)

Subarea (total 20 Q.H.)

Computer Science Requirements

Requirements for Computer Science Majors

Computer Science Courses

Computer Science courses fall into one of two levels. Level I consists of Courses: COM 1100, COM 1101, COM 1102, COM 1130, COM 1131, COM 1201, COM 1205; Labs: COM 1110, COM 1113, and COM 1111 or COM 1114.

All Level I courses and labs are required for the major. The rest of the computer science courses are in Level II. Majors must take eight Level II courses; three of these must form one of the following tracks: Data Base Track COM 1310, COM 1315, COM 1316; Systems Track COM 1330, COM 1335, COM 1336; Languages Track COM 1350, COM 1355, COM 1356.

Finally, majors must take the one-credit seminar COM 1620 during their senior year.

Mathematics Courses

Major must take the following eight mathematics courses; Level I Calculus MTH 1123, MTH 1124, MTH 1125, and MTH 1223; Discrete Mathematics MTH 1137, MTH 1237.

Physics Courses

Level II Probability MTH 1387; Linear Algebra MTH 1301.

Majors must take the following three physics courses: Physics PHY 1241, PHY 1242, and PHY 1243.

Electrical Engineering Courses

Majors must take the following two electrical engineering courses: Digital Computers ECE 1191 and ECE 1192.

Majors must take the following six courses: English ENG 1110 and ENG 1111; Technical Writing ENG 1125; Computers and Society SOC 1485; Western Civilization HST 1101 and HST 1102.

Other Subject Areas

In addition, majors must take at least five courses in a selected subarea of humanities, science, social science, business, education, or engineering. The College of Computer Science will provide lists of suitable courses in a variety of subareas.

Majors have five free electives. However, at least two courses among the total ten (five in the subarea and five electives) must be in social sciences or humanities.

NOTES:

1. The total number of credit hours required for graduation is 179.
2. During the first two years, students should take all Level I computer science and mathematics courses, physics, English, Western Civilization, and one other course. The three computer science track courses should be taken in the third and fourth year. See the Specimen Program for details on program arrangement.

Requirements for Computer Science Minors

In addition to fulfilling the requirements of their major department, students who wish to minor in computer science must take the following four courses: COM 1100, COM 1101, COM 1130, COM 1201. They must also take three additional four-quarter-hour courses with the COM prefix.

College of Criminal Justice

Specimen Program in Criminal Justice

First Year

Quarter 1			Quarter 2			Quarter 3		
No.	Course	Q.H.	No.	Course	Q.H.	No.	Course	Q.H.
CJ 1101	Admn. Crim. Just.	4	ECN 1116	Prin. Microecon.	4	SOC 1100	Intro. Soc.	4
ECN 1115	Prin. Macroecon.	4	POL 1111	Intro. Amer. Gov.	4	PSY 1112	Fnd. Psych. II	4
POL 1110	Intro. Politics	4	ENG 1110	Fresh. Eng. I	4	ENG 1111	Fresh. Eng. II	4
PSY 1111	Fnd. Psych I	4	CJ 1112	ISSCJ Admins.	4	CJ 1151	Law & Legl. Pro.	4

Second Year

Quarter 4			Quarter 5		
No.	Course	Q.H.	No.	Course	Q.H.
POL 1318	State & Loc. Gov.	4	_____	Math/Sci. Require.	4
CJ 1251	Crim. Law	4	_____	Non-Crim. Jus. Elctv.	4
CJ 1201	Criminology	4	CJ _____	Crim. Jus. Elctv.	4
_____	Math/Sci. Require.	4	CJ 1252	Crim. Due Proc.	4

Third Year

Quarter 6			Quarter 7		
No.	Course	Q.H.	No.	Course	Q.H.
CJ _____	Crim. Jus. Elctv.	4	CJ _____	Crim. Jus. Elctv.	4
ENG 1350	Intrmdte. Writing	4	_____	Non-Crim. Jus. Elctv.	4
CJ 1451	Crim. Jus. Res.	4	_____	Non-Crim. Jus. Elctv.	4
HST 1101	Western Civ. I	4	HST 1102	Western Civ. II	4

Fourth Year

Fifth Year

Quarters 8-11					
No.	Course	Q.H.	No.	Course	Q.H.
CJ _____	Crim. Jus. Elctvs.	24	_____	Non-Crim. Jus. Elctv.	36

College of Engineering

Specimen Program in Chemical Engineering

All courses in Chemical Engineering must be taken in sequence shown.

First Year

Quarter 1			Quarter 2			Quarter 3		
No.	Course	Q.H.	No.	Course	Q.H.	No.	Course	Q.H.
MTH 1123	Calculus	4	MTH 1124	Calculus	4	MTH 1128	Calculus	4
PHY 1221	Physics. for Eng. I	4	PHY 1222	Physics for Eng. II	4	PHY 1223	Physics for Eng. III	4
GE 1100	Comp. for Eng.	4	GE 1110	Eng. Graph. and Des.	4	CHM 1132	Gen. Chem.	4
ENG 1111	Fresh. Eng. II	4	CHM 1131	Gen. Chem.	4	ENG 1113	Gr. Th. Lit.	4
PHY 1521	Physics Lab for Eng. I	1	PHY 1522	Physics Lab for Eng. II	1	CHM 1138	Chem. Lab	1

First-year pattern of two-term courses may vary according to assigned section.

Second Year

Quarter 4			Quarter 5		
No.	Course	Q.H.	No.	Course	Q.H.
CHE 1201	Chm. Eng. Clc. I	4	CHE 1211	Chem. Eng. Thrm. I	4
CHE 1205	Computation Lab	2	CHM 1272	Org. Chm. II (& Lab)	5
CHM 1271	Organic Chem. I	3	MTH 1228	Calculus	4
MTH 1227	Calculus	4		Soc. Sc./Hm. Elctv.	4
	Soc. Sc./Hm. Elctv.	4			

Third Year

Quarter 6			Quarter 7		
No.	Course	Q.H.	No.	Course	Q.H.
CHE 1300	Chm. Eng. Clc. II	4	CHE 1310	Chm. Eng. Therm. II	4
CHM 1381	Phys. Chem. I	3	CHE 1320	Momentum Transprt.	4
CHM 1394	Exp. Phys. Chm. I	2	CHM 1382	Physical Chem. II	3
MTH 1225	Math Analysis I	4	CHM 1395	Exp. Phys. Chem. II	2
ENG 1125	Tech. Writ. I or		ENG 1125	Tech. Writ. I or	
	Soc. Sc./Hm. Elctv.	4		Soc.Sc./Hm. Elctve.*	4

Fourth Year

Quarter 8			Quarter 9		
No.	Course	Q.H.	No.	Course	Q.H.
CHE 1401	Transp. Phen. I	4	CHE 1402	Transp. Phen. II	4
CHE 1410	Exprmntl. Meth. I	4	CHE 1411	Exprmntl. Methods II	4
CHE 1310	Chm. Eng. Thrm.II	4	CHE 1421	Chem. Eng. Kinetics	4
	Soc. Sc./Hm. Elctv.	4		Soc. Sc./Hm. Elctv.	4

Fifth Year

Quarter 10*			Quarter 11*		
No.	Course	Q.H.	No.	Course	Q.H.
CHE 1501	Process Design I	6	CHE 1502	Process Design II	6
CHE _____	Chm. Eng. Elect.	4	CHE _____	Chm. Eng. Elective	4
CHE _____	Chm. Eng. Elect.	4	CHE _____	Chm. Eng. Elective	4
	Soc. Sc./Hm. Elctv.	4		Soc. Sc./Hm. Elctv.	4

Quarters 4, 6, 8, and 10 offered Fall and Winter. Quarters 5, 7, and 9 offered Spring and Summer.

*Quarters 10 and 11 must be approved by department adviser.

Specimen Program in Civil Engineering**First Year**

Quarter 1			Quarter 2			Quarter 3		
No.	Course	Q.H.	No.	Course	Q.H.	No.	Course	Q.H.
GE 1100	Comp. for Engr.	4	GE 1110	Engr. Graph. and Des.	4	MTH 1128	Calculus III	4
MTH 1123	Calculus	4	MTH 1124	Calculus II	4	PHY 1223	Physics III	4
PHY 1221	Physics I	4	PHY 1222	Physics II	4	CHM 1132	Gen. Chem.	4
ENG 1111	Fresh. Engl. II	4	CHM 1131	Gen. Chem.	4	ENG 1113	Gr. Th. Lit.	4
PHY 1521	Physics Lab for Eng. I	1	PHY 1522	Physics Lab for Eng. II	1			

Second Year

Quarter 4			Quarter 5		
No.	Course	Q.H.	No.	Course	Q.H.
MTH 1227	Calculus IV	4	MTH 1228	Calculus V	4
CIV 1210	Struct. Mech. I	4	ECN 1116	Economics II	4
CIV 1610	Comp. Appl. in CE	4	CIV 1211	Struct. Mech. 2	4
CIV 1510	Materials	4	CIV 1620	Engr. Meas.	4
CIV 1511	Materials Lab	2	CIV 1621	Engr. Meas. Lab.	2

Third Year

Quarter 6						Quarter 7	
No.	Course	Q.H.	No.	Course	Q.H.		
MTH 1225	Math. Anal. I	4	IIS 1366	Eng. Economy	4		
	Soc. Sc./Hm. Elctv.	4	ME 1320	Dynamics	4		
CIV 1310	Fluid Mech.	4	CIV 1340	Environ. Eng.	4		
CIV 1220	Struc. Anal. I	4	SPC 1115	Intro. Comm. Skill	4		
CIV 1226	St. An. & Ds. Lab	2					

Fourth Year

Quarter 8						Quarter 9	
No.	Course	Q.H.	No.	Course	Q.H.		
CIV 1240	Concrete Des. I*	4	CIV 1410	Soil Mech.	4		
	Tech. Elective	4	CIV 1411	Soil Mech. Lab	2		
	Soc. Sc./Hm. Elctv.			Tech. Elctv.	4		
PHY 1224	Physics	4		Soc. Sc./Hum. Elctv.	4		
			ECE 1171	Elec. Engr. I	4		

Fifth Year

Quarter 10						Quarter 11	
No.	Course	Q.H.	No.	Course	Q.H.		
CIV 1250	Struct. Des.	4		Gen. Elective†	4		
	Tech. Elective	4		Tech. Elective	4		
	Tech. Elective	4		Tech. Elective	4		
CIV 1640	App. Probability	4		Tech. Elective	4		

*In Quarter 8 one-half of the class takes CIV 1240, the other CIV 1410 and CIV 1411; In Quarter 9 the sections are reversed.

†This may be a technical or arts and sciences elective or any other course given at the University. The general elective may be interchanged with an arts and sciences elective in another quarter, with the approval of the Civil Engineering Department.

Technical Electives

Quarters 8 & 10 Fall/Winter						Quarters 9 & 11 Spring					
No.	Course	Q.H.	No.	Course	Q.H.	No.	Course	Q.H.	No.	Course	Q.H.
CIV 1820	Special Topics	4	CIV 1820	Special Topics	4						
CIV 1810	Special Topics	4	CIV 1810	Special Topics	4						
CIV 1320	Hydraulic Eng.*	4	CIV 1630	C.E. Engr. Sys.	4						
CIV 1212	Str. Mch. III†	4	CIV 1550	Constr. Engr.	4						
CIV 1241	Ccr. Des. II†	4	CIV 1540	Highway Engr.	4						
CIV 1430	Geotechnology	4	CIV 1251	Struct. Des. II†	4						
CIV 1341	Environ. Eng. II*	4	CIV 1420	Found. Engr. †	4						
CIV 1222	Struct. Analysis	4	CIV 1360	Environ. Des.*	4						
CIV 1350	Envl.& Hyd. Lab	4	CIV 1650	Legal Aspects	4						
CIV 1650	Legal Aspects	4	CIV 1530	Transp. Engr.	4						
			CIV 1224	Struct. Anal. III†	4						
			CIV 1370	Air Pollution*	4						

*The elective courses completed must have a combined total of at least eleven engineering science credits according to the department's list of elective courses.

Note: During the summer the Civil Engineering Department offers a limited number of technical electives. Students should check with the Department for specific information. Technical electives from other engineering departments may be elected with the approval of the Civil Engineering Department Curriculum Committee.

Specimen Program in Computer Engineering

First Year

Quarter 1			Quarter 2			Quarter 3		
No.	Course	Q.H.	No.	Course	Q.H.	No.	Course	Q.H.
MTH 1123	Calculus 1	4	MTH 1124	Calculus 2	4	MTH 1128	Calculus 3	4
PHY 1221	Physics 1	4	PHY 1222	Physics 2	4	PHY 1223	Physics 3	4
GE 1100	Fortran	4	GE 1110	Eng'g Graph.	4	CHM 1132	Chem. 2	4
ENG 1111	Fresh. Eng. II	4	PHY 1522	Chem. 1	4	ENG 1113	Gr. Th. Lit.	4
PHY 1521	Physics Lab for Eng I	1	PHY 1522	Physics Lab for Eng II	1			

Second Year**Quarter 4**

No.	Course	Q.H.
MTH 1225	Math Analysis 1	4
PHY 1224	Physics 4	4
ECE 1215	Circuits & Systems 1	4
	Soc. Sc./Hm. Elctv.	4
ECE 1101	E.E. Lab. 1-A	1

Quarter 5

No.	Course	Q.H.
MTH 1227	Calculus	4
ME 1321	Mechanics	4
ECE 1216	Circuits & Systems 2	4
	Soc. Sc./Hm. Elctv.	4
ECE 1102	E.E. Lab 1-B	1

Third Year**Quarter 6**

No.	Course	Q.H.
ECE 1217	Circuits & Systems 3	4
ECE 1332	Discrete Systems	4
ECE 1346	Electronics 1	4
ECE 1301	E.E. Lab 2-A	1
ME 1340	Thermodynamics or	4
ME 1386	Material Science	4

Quarter 7

No.	Course	Q.H.
ECE 1218	Circuits & Systems	4
ECE 1333	Control Systems	4
ECE 1347	Electronics 2	4
ECE 1302	E.E. Lab 2-B	1
	Soc. Sc./Hm. Elctv.	4

Fourth Year**Quarter 8**

No.	Course	Q.H.
ECE 1349	Electron Des. 1	4
ECE 1363	E.M. Fld. Thry. 1	4
ECE 1381	Comp. Eng'g. 1	4
	Soc. Sc./Hm. Elctv.	4
ECE 1304	E.E. Lab 3-A	1

Quarter 9

No.	Course	Q.H.
ECE 1350	Electron. Des. 2	4
ECE 1364	E.M. Field Theory 2	4
ECE 1382	Comp. Eng'g. 2	4
	Soc. Sc./Hm. Elctv.	4
ECE 1305	E.E. Lab. 3-B	1

Fifth Year**Quarter 10**

No.	Course	Q.H.
ECE 1383	Comp. Eng'g. 3	4
ECE 1454	Comm. Systems	4
ECE 1384	Comp. Eng'g. 4	4
	Soc. Sc./Hm. Elctv.	4
ECE 1307	Design Lab	2

Quarter 11

No.	Course	Q.H.
ECE 1408	Physical Elect.	4
ECE 1385	Comp. Eng'g. 5	4
ECE 1386	Comp. Eng'g. 6	4

Quarters 4, 6, 8, and 10 offered Fall and Winter.
Quarters 5, 7, and 9 offered Spring and Summer.

Specimen Program in Electrical Engineering**First Year****Quarter 1**

No.	Course	Q.H.
GE 1100	Comp. for Engr.	4
MTH 1123	Calculus I	4
PHY 1221	Physics I	4
ENG 1111	Fresh. Eng. II	4
PHY 1521	Physics Lab for Eng. I	1

Quarter 2

No.	Course	Q.H.
GE 1110	Engr. Graph. and Des.	4
PHY 1222	Physics II	4
MTH 1124	Calculus II	4
CHM 1131	Gen. Chem.	4
PHY 1522	Physics Lab for Eng. II	1

Quarter 3

No.	Course	Q.H.
MTH 1128	Cal.	4
PHY 1223	Physics II	4
CHM 1132	Gen. Chem.	4
ENG 1113	Gr. Th. Lit.	4

Second Year**Quarter 4**

No.	Course	Q.H.
MTH 1225	Math Anal. 1	4
PHY 1224	Physics	4
ECE 1215	Circ. & Sys. I	4
	Soc. Sci./Hum. Elec.	4
PHY 1521	Physics Lab	1
ECE 1101	Elec. Engr. Lab. 1-A	1

Quarter 5

No.	Course	Q.H.
MTH 1227	Calculus	4
ME 1321	Mech.	4
ECE 1216	Circ. & Sys. 2	4
	Soc. Sci./Hum. Elec.	4
PHY 1522	Physics Lab	1
ECE 1102	Elec. Engr. Lab 1-B	1

Third Year

Quarter 6			Quarter 7		
No.	Course	Q.H.	No.	Course	Q.H.
ECE 1217	Cir. & Sys. 3	4	ECE 1218	Cir. & Sys.	4
ECE 1332	Discrete Syst.	4	ECE 1333	Cont. Sys.	4
ECE 1346	Electron. I	4	ECE 1347	Electron. II	4
ECE 1340	Therm. I or	4	ECE 1302	E.E. Lab 2-B	1
ME 1386	Mat. Sci.	4		Soc. Sci./Hum.	4
ECE 1301	Elec. Engr. Lab II-A	1		Elective	

Fourth Year

Quarter 8			Quarter 9		
No.	Course	Q.H.	No.	Course	Q.H.
ECE 1349	Electron Des. 1	4	ECE 1350	Electron. Des. 2	4
ECE 1363	E.M. Field Th. 1	4	ECE 1364	E.M. Field Th. 2	4
ECE 1381	Comp. Eng. 1	4	ECE 1382	Comp. Eng. 2	4
	Soc. Sci./Hum. Elec.	4		Soc. Sci./Hum. Elec.	4
ECE 1304	Elec.Engr. Lab III-A	1	ECE 1305	Elec. Engr. Lab. III-B	1

Fifth Year

Quarter 10			Quarter 11		
No.	Course	Q.H.	No.	Course	Q.H.
ECE 1383	Comp. Eng. 3	4	ECE 1420	Control Systems or	4
ECE 1454	Comm. Syst.	4	ECE 1408	Physical Elect. or	4
	Soc. Sci./Hum. Elec.	4	ECE 1465	Wave Tr. & Recep. or	4
	Tech. Elec.	4	ECE 1375	Electromech. Dy.	4
ECE 1307	Elec. Engr. Lab IV	2		Tech. Elective	4
				Tech. Elective	4

Specimen Program in Power Systems

First Year

Quarter 1			Quarter 2			Quarter 3		
No.	Course	Q.H.	No.	Course	Q.H.	No.	Course	Q.H.
MTH 1123	Calculus I	4	MTH 1124	Calculus II	4	MTH 1128	Calc. III	4
PHY 1221	Physics I	4	PHY 1222	Physics II	4	PHY 1223	Physics III	4
GE 1100	Comp. for Engr.	4	GE 1110	Eng. Graph. and Des.	4	CHM 1132	Gen. Chem.	4
ENG 1111	Fresh. Eng. II	4	CHM 1131	Gen. Chem. I	4	ENG 1113	Gr. Th. Lit.	4
PHY 1521	Physics Lab for Eng. I	1	PHY 1522	Physics Lab for Eng. II	1			

Second Year

Quarter 4			Quarter 5		
No.	Course	Q.H.	No.	Course	Q.H.
MTH 1225	Math. Anal. 1	4	MTH 1227	Calculus	4
PHY 1224	Physics IV	4	ME 1321	Mech.	4
ECE 1215	Cir. & Systems I	4	ECE 1216	Cir. & Systems 2	4
	Soc. Sc./Hm. Elctv.	4		Soc. Sc./Hm. Elctv.	4
ECE 1101	E.E. Lab 1-A	1	ECE 1102	Elec. Engr. Lab 1-B	1

Third Year

Quarter 6			Quarter 7		
No.	Course	Q.H.	No.	Course	Q.H.
ECE 1217	Cir. & Sys. 3	4	ECE 1218	Cir. & Sys. 4	4
ME 1340	Therm. I or	4	ECE 1333	Cont. Sys.	4
ME 1386	Mat. Sci.	4	ECE 1347	Electron. 2	4
ECE 1332	Discrete Sys.	4		Soc. Sc./Hm. Elctv.	4
ECE 1346	Electron. 1	4	ECE 1302	E. E. Lab II-B	1
ECE 1301	E.E. Lab II-A	1			

Quarters 4 and 6 offered Fall and Winter.
Quarters 5 and 7 offered Spring and Summer.

Fourth Year

Quarter 8 (Fall Only)			Quarter 9 (Spring Only)		
No.	Course	Q.H.	No.	Course	Q.H.
ECE 1349	Electron. Des. 1	4	ECE 1350	Electron. Des. 2	4
ECE 1363	E.M. Field Th. 1	4	ECE 1364	E.M. Field Th. 2	4
ECE 1381	Comp. Eng. 1	4	ECE 1305	Comp. Eng. 2	4
	SS/H	4		SS/H	4
ECE 1304	E.E. Lab III-A			Soc. Sc./Hm. Elctv.	4

Fifth Year

Quarter 10 (Winter Only)			Quarter 11 (Spring Only)		
No.	Course	Q.H.	No.	Course	Q.H.
ECE 1471	Elec. Pow. Sys. 1	4	ECE 1472	Elect. Pow. Sys. 2	4
ECE 1371	Elect. Mach. 1	4	ECE 1372	Elect. Mach. 2	4
ME 1341	Thermo. 2	4	ECE 1379	Trans. E. Pow. Sys.	4
ECE 1431	Elec. Pow. Lab 1	1	ECE 1434	Elect. Pow. Lab 2	2
	Soc. Sc./Hm. Elctv.	4			

*In Quarter 11, only one technical elective is required for graduation.

Specimen Program in General Engineering**First Year**

Quarter 1			Quarter 2			Quarter 3		
No.	Course	Q.H.	No.	Course	Q.H.	No.	Course	Q.H.
MTH 1123	Calculus	4	MTH 1124	Calculus	4	MTH 1125	Calculus	4
PHY 1221	Physics I	4	PHY 1222	Physics II	4	PHY 1223	Physics III	4
GE 1100	Comp. for Engr.	4	GE 1110	Engr. Graph. & Des.	4	ENG 1113	Gr. Th. Lit.	4
ENG 1111	Fresh. Eng. II	4		Soc. Sc./Hm. Elctv.	4		Soc. Sc./Hm. Elctv.	4
PHY 1521	Physics Lab for Eng. I	1	PHY 1522	Physics Lab for Eng II	1			

Second Year

Quarter 4			Quarter 5		
No.	Course	Q.H.	No.	Course	Q.H.
MTH 1227	Calculus	4	MTH 1228	Calculus	4
PHY 1224	Physics IV	4		Engr. Sci. Elctv.	4
	Engr. Sci. Elctv.	4		Coord. Study Elctv.	4
	Soc. Sc./Hm. Elctv.	4		Soc. Sc./Hm. Elctv.	4
PHY 1521	Physics Lab I	1	PHY 1522	Physics Lab II	1

Third Year

Quarter 6			Quarter 7		
No.	Course	Q.H.	No.	Course	Q.H.
	Engr. Sci. Elctv.	4		Engr. Sci. Elctv.	4
	Coord. Study Elctv.	4		Engr. Sci. Elctv.	4
	Coord. Study Elctv.	4		Coord. Study Elctv.	4
	Soc. Sc./Hm. Elctv.	4		Soc. Sc./Hm. Elctv.	4

Fourth Year

Quarter 8			Quarter 9		
No.	Course	Q.H.	No.	Course	Q.H.
	Engr. Sci. Elctv.	4		Engr. Sci. Elctv.	4
	Engr. Sci. Elctv.	4		Engr. Sci. Elctv.	4
	Coord. Study Elctv.*	4		Coord. Study Elctv.	4
	Coord. Study Elctv.	4		Coord. Study Elctv.	4

Fifth Year

Quarter 10			Quarter 11		
No.	Course	Q.H.	No.	Course	Q.H.
_____	Engr. Sci. Electv.	4	_____	Engr. Sci. Electv.	4
_____	Engr. Sci. Electv.	4	_____	Coord. Study Electv.	4
_____	Coord. Study Electv.	4	_____	Coord. Study Electv.	4
_____	Coord. Study Electv.	4	_____	Coord. Study Electv.	4

Note: Quarters 4, 6, 8, and 10 offered Fall and Winter; quarters 5, 7, and 9 offered Spring and Summer.
*Coordinated Study electives are courses chosen to meet the student's career objectives; these courses will be selected in conjunction with the student's adviser and are subject to the adviser's approval.

Specimen Program in Industrial Engineering

First Year

Quarter 1			Quarter 2			Quarter 3		
No.	Course	Q.H.	No.	Course	Q.H.	No.	Course	Q.H.
MTH 1123	Calculus I	4	MTH 1124	Calculus II	4	MTH 1128	Calculus III	4
PHY 1221	Physics I	4	PHY 1222	Physics II	4	PHY 1223	Physics III	4
GE 1100	Comp. for Engr.	4	GE 1110	Engr. Graph. and Des.	4	CHM 1132	Gen. Chem.	4
ENG 1111	Fresh. Eng. II	4	CHM 1131	Gen. Chem.	4	ENG 1113	Gr. Th. Lit.	4
PHY 1521	Physics Lab. for Eng. I	1	PHY 1522	Physics Lab for Eng II	1			

Second Year

Quarter 4			Quarter 5		
No.	Course	Q.H.	No.	Course	Q.H.
IIS 1200	Work Des.	4	IIS 1300	Probabilistic	4
MTH 1227	Calculus IV	4	ME 1311	Statics	4
PHY 1224	Physics IV	4	MTH 1228	Calculus V	4
ECN 1115	Economics I	4	ECN 1116	Economics II	4
PHY 1521	Physics Lab I	1	PHY 1522	Physics Lab II	1

Third Year

Quarter 6			Quarter 7		
No.	Course	Q.H.	No.	Course	Q.H.
IIS 1330	Prin. of Comp. and Prog. I	4	IIS 1320	Statistics II	4
ECE 1171	Elec. Engr. I	4	IIS 1340	Operations Res. I	4
	Math Elective	4		Engr. Sci. Elect.	4
IIS 1310	Statistics I	4		Technical Elective	4
MTH 1225	Math Analysis	4			

Fourth Year

Quarter 8			Quarter 9		
No.	Course	Q.H.	No.	Course	Q.H.
IIS 1400	Systems I	4	IIS 1360	Engr. Econ. and Dec. Thry.	4
IIS 1350	Dig. Sim. Tech.	4		Engr. Sci. Elect.	4
IIS 1341	Operations Res. II	4		Behavioral Sci.	4
	Behavioral Sci.	4		Elective	4
	Elective	4	IIS 1405	Prod. Inv. Cl.	4

Fifth Year

Quarter 10			Quarter 11		
No.	Course	Q.H.	No.	Course	Q.H.
IIS 1480	People in Orgns.	4		Tech Elective	4
IIS 1401	Design Project	4		Tech Elective	4
	Tech Elective	4		Open Elective	4
	Soc. Sci./Hum.	4		Soc. Sci./Hum.	4
	Elective			Elective	

The elective courses completed must have a combined total of at least twelve engineering science credits and two design credits.

Specimen Program in Mechanical Engineering

First Year

Quarter 1			Quarter 2			Quarter 3		
No.	Course	Q.H.	No.	Course	Q.H.	No.	Course	Q.H.
GE 1100	Comp. for Engr.*	4	GE 1110	Engr. Graph. and Des.*	4	MTH 1125	Calculus III	4
MTH 1123	Calculus I	4	MTH 1124	Calculus II	4	PHY 1223	Physics III	4
PHY 1221	Physics I	4	PHY 1222	Physics II	4	ENG 1113	Gr. Th. Lit.*	4
ENG 1111	Fresh. Engl. II*	4	CHM 1131	Gen. Chem.*	4	CHM 1131	Gen. Chem.*	4
PHY 1521	Physics Lab for Eng. I	1	PHY 1522	Physics Lab for Eng. II	1			

*First-year pattern of two-term courses may vary according to assigned section.

Second Year

Quarter 4			Quarter 5		
No.	Course	Q.H.	No.	Course	Q.H.
ME 1311	Statics	4	ME 1312	Dynamics I	4
MTH 1227	Calculus IV	4	ME 1341	Therm. II	4
ME 1340	Thermodynamics I	4	MTH 1228	Calculus V	4
PHY 1521	Physics Lab. I	1	PHY 1522	Physics Lab II	1
ECN 1115	Prin. and Prob. of Econ. or	4	ECN 1115	Prin. and Prob. of Econ. or	4
ME 1390	Meas. and Analysis	4	ME 1390	Meas. and Analysis	4

Third Year

Quarter 6			Quarter 7		
No.	Course	Q.H.	No.	Course	Q.H.
MTH 1225	Math. Anal. I	4	ME 1380	Materials Sci. or	5
ME 1313	Strgthmat I	4	ECE 1171	Elect. Eng.	4
ME 1315	Dynamics II	4	ME 1226	Math. Analysis II	4
ME 1370	Fluid Mechanics	4	ME 1314	Strgthmat II	4
ENG 1340	Writing Labs	1	ME 1345	Heat Transfer	4

Fourth Year

Quarter 8			Quarter 9		
No.	Course	Q.H.	No.	Course	Q.H.
	Tech. Elective	4		Soc. Sci./Hum. Elec.	4
	Soc. Sci./Hum. Elec.	4	ME 1405	Mech. Vibrations	4
ME 1330	Mechanical Design or	4	ME 1330	Mechanical Design or	4
ME 1332	Thermal Design	4	ME 1332	Thermal Design	4
ECE 1171	Elect. Eng. or	4		Physics/Sci. Elec.	4
ME 1380	Materials Science	4			

Fifth Year

Quarter 10			Quarter 11		
No.	Course	Q.H.	No.	Course	Q.H.
	Tech. Elective	4		Tech. Elective	4
ME 1331	Design Project	4		Tech. Elective	4
	Soc. Sci./Hum. Elec.	4		Soc. Sci./Hum. Elec.	4
	Elec.			Elec.	
ME	Design Elect.		ME	Design Elec.	5

Technical electives must be 4 or 5 Q.H. courses and include one Materials Elective.
One of the 5 Q.H. Design Electives may be an Independent Design Project.
Seniors with a QPA 3.25 or above are, on a space-available basis, encouraged to elect graduate courses in lieu of technical electives.

Specimen B.S./M.S. Program in Mechanical Engineering

During the first two years of study, students enrolled in the B.S./M.E. Program in Mechanical Engineering pursue a curriculum similar to that of the regular M.E. Program.

Third Year

Quarter 6			Quarter 7		
No.	Course	Q.H.	No.	Course	Q.H.
ME 1341	Therm. II	4	ME 1370	Fluid Mech.	4
ME 1313	Strength I	4	ME 1380	Mats. Science or	4
ME 1390	Meas. and Anal. or	4	ME 1390	Meas. and Anal.	4
ME 1380	Mat. Science	5	ME 1314	Strength II	4
MTH 1225	Math Analysis	4	MTH 1226	Math Analysis	4
	Soc. Sci./Hum. Elective	4		Soc. Sci./Hum. Elective	4

Fourth Year

Quarter 8			Quarter 9		
No.	Course	Q.H.	No.	Course	Q.H.
ME 1330	Mechanical Des.	4	ME 1345	Heat Transfer I	4
ECE 1171	Electrical Eng.	4	ME 1315	Dynamics	4
	Tech. Elective	4		Tech. Elective	4
	Soc. Sci./Hum. Elective	4		Soc. Sci./Hum. Elective	4
ME 3100	Math Methods I	4		Grad. Elective	4

Fifth Year

Quarter 10			Quarter 11			Quarter 12		
No.	Course	Q.H.	No.	Course	Q.H.	No.	Course	Q.H.
	Grad. Elective	10		Grad. Elective	10		Thesis	6
	B.S. Tech. Elective	4		B.S. Tech. Elective	4		B.S. Tech. Elective	8
ME 1332	Thermal Design	4	ME 1331	B.S. Design Proj.	4		Grad. Elective	4
	Grad. Seminar	2						

A 3.0 or better QPA is required for admission to the program after the freshman year. Freshmen are eligible for entry only through the Admissions Department prior to enrolling at Northeastern. All students must maintain a 3.0 or better QPA to stay in the program.

A complete program must be arranged with, and approved by, a faculty adviser no later than the end of the third year. The program will vary for each student and the above is only a sample arrangement.

Consult the *Mechanical Engineering Undergraduate Curriculum Guide* for information regarding choice of B.S. electives.

Graduate courses are selected according to the graduate degree requirements listed in the *Graduate School of Engineering Student Guide and Catalog*.

School of Engineering Technology

Specimen Program in Aerospace Maintenance

First Year

Quarter 1			Quarter 2			Quarter 3		
No.	Course	Q.H.	No.	Course	Q.H.	No.	Course	Q.H.
MTH 1194	Calculus II	4	ENG 1111	Fresh. Eng. II	4	MTH 1195	Calculus III	4
GET 1170	Graphics I	4	PHY 1192	Physics II	4	PHY 1193	Physics III	4
PHY 1191	Physics I	4	PHY 1194	Physics Lab I	2	PHY 1195	Physics Lab II	2
ENG 1110	Fresh. Eng. I	4	GET 1100	Cp. Pg. for Eng. Tch.	4	GET 1170	Graphics II	4
				Soc. Sc./Hm. Elctv.	4	ENG 1114	Fresh. Tech. Writ.	4

Second Year

Quarter 4			Quarter 5		
No.	Course	Q.H.	No.	Course	Q.H.
MET 1301	Mechanics A	4	MET 1302	Mechanics B	4
EET 1320	Elec. & Elec. I	4	MET 1314	Strss. Anal. A	4
MET 1340	Thermo. A.	4	MET 1380	Materials A	4
ECN 1115	Econ. Prin.	4		SS/HST Elective	4

Third Year

Quarter 6			Quarter 7		
No.	Course	Q.H.	No.	Course	Q.H.
MET 1481	Materials B	4	MET 1370	Fluid Mech. A	4
MET 1390	Meas. & Ana. Lab	4	MET 1391	Tech. Lab A	2
MET 1315	Strss. Anal. B	4	MET 1393	Tech. Lab C	2
	Tech. Elective	4		Tech. Elective	4
	SS/HST Elective	4		SS/HST Elective	4

Specimen Program in Electrical Engineering Technology**First Year**

Quarter 1			Quarter 2			Quarter 3		
No.	Course	Q.H.	No.	Course	Q.H.	No.	Course	Q.H.
MTH 1191	College Algebra	4	MTH 1192	Pre-Calculus	4	MTH 1193	Calculus 1	4
PHY 1191	Physics I	4	PHY 1192	Physics II	4	PHY 1193	Physics III	4
ENG 1110	Fresh. Eng. I	4	ENG 1111	Fresh. Eng. II	4	ENG 1114	Fresh. Tech. Writ.	4
GET 1170	Eng. Graphics I	4	GET 1110	Computer Program.	4	GET 1171	Eng. Graph. II	4
			PHY 1194	Physics Lab. I	2	PHY 1195	Physics Lab. II	2

Second Year

Quarter 4			Quarter 5		
No.	Course	Q.H.	No.	Course	Q.H.
MTH 1194	Calculus 2	4	MTH 1195	Calculus 3	4
EET 1151	Circ. Analys. I	4	EET 1152	Circ. Analys. II	4
ECN 1115	Prncpls. Ecnmcs.	4	MET 1319	Mechanics	4
	Soc. Sc./Hm. Elctv.	4		Soc. Sc./Hm. Elctv.	4
			EET 1124	Circuit Lab. I	2

Third Year

Quarter 6			Quarter 7		
No.	Course	Q.H.	No.	Course	Q.H.
EET 1353	Circ. Analys. III	4	EET 1354	Circ. Analys. IV	4
EET 1311	Electronics I	4	EET 1312	Electronics II	4
EET 1360	Engineer. Analys.	4	EET 1310	Electrical Measure.	4
EET 1125	Circuit Lab. II	2	EET 1323	Electrical Lab.	2
SPC	Spch./Com. Elctv.	4		Open Elctv.*	

Fourth Year

Quarter 8			Quarter 9		
No.	Course	Q.H.	No.	Course	Q.H.
EET 1313	Electronics III	4	EET 1314	Pulse & Digital I	4
	Tech. Elective	4		Technical Elective	4
	Soc. Sc./Hm. Elctv.	4		Soc. Sc./Hm. Elctv.	4
EET 1330	Energy Conversion	4	EET 1337	Distributed Systems	4
EET 1327	Advnc. El. Lab. I	2	EET 1328	Advcd. Elec. Lab. II	2

Fifth Year

Quarter 10			Quarter 11		
No.	Course	Q.H.	No.	Course	Q.H.
EET 1377	Control Engrn. I	4	EET 1378	Control Engineer. II	4
EET 1370	Digital Cmptrs. I	4	EET 1371	Digital Computers II	4
	Tech. Elective	4		Technical Elective	4
EET 1329	Adv. El. Lab. III	2		Soc. Sc./Hm. Elctv.	4

*No Phys. Ed., ROTC, Introductory.

Technical Elective Sequences

(A) Power Systems Sequence (B) Communications Engineering Sequence

No.	Course	Q.H.	No.	Course	Q.H.
EET 1362	Bas. Pwr. Sys. I	4	EET 1317	Prin. of Com. Sys. I	4
EET 1363	Bas. Pwr. Sys. II	4	EET 1318	Prin. of Com. Sys. II	4
EET 1364	Bas. Pwr. Sys. III	4	EET 1319	Prin. of Com. Sys. III	4
	Tech. Elective	4		Tech. Elective	4

Specimen Program In Mechanical Engineering Technology

First Year

Quarter 1			Quarter 2			Quarter 3		
No.	Course	Q.H.	No.	Course	Q.H.	No.	Course	Q.H.
MTH 1191	Alg. & Trig. I	4	MTH 1192	Alg. & Trig. II	4	MTH 1193	Calculus I	4
PHY 1191	Physics I	4	PHY 1192	Physics II	4	PHY 1193	Physics III	4
ENG 1110	Fresh. Eng. I	4	PHY 1194	Physics Lab. I	2	ENG 1114	Fresh. Tech. Writ.	4
GET 1170	Eng. Grphcs. 1 or	4	ENG 1111	Fresh. Eng. II	4	GET 1171	Graphics 2	4
GET 1100	Computer 1		GET 1110	Computer 1 or	4	PHY 1195	Physics Lab. II	2
			GET 1170	Eng. Graphics I	4			

Second Year

Quarter 4			Quarter 5		
No.	Course	Q.H.	No.	Course	Q.H.
MTH 1194	Calculus A	4	MTH 1195	Calculus B	4
GET 1364	Kinematics	4	MET 1302	Mechanics B	4
MET 1301	Mechanics A	4	MET 1314	Stress Analysis A	4
EET 1320	Electr./Electron.	4	CHM _____	Chemistry	4

Third Year

Quarter 6			Quarter 7		
No.	Course	Q.H.	No.	Course	Q.H.
MET 1315	Stress Analysis B	4	MET 1380	Materials A	4
MET 1390	Meas. Lab.	2	MET 1391	Tech. Lab. A	2
MET 1340	Thermo A.	4	MET 1341	Thermo B	4
MET 1303	Mechanics C	4	MET 1370	Fluids A	4
ECN 1115	Economics	4	_____	Soc. Sc./Hm. Elctv.	4

Fourth Year

Quarter 8			Quarter 9		
No.	Course	Q.H.	No.	Course	Q.H.
MET 1330	Mech. Des. A	4	MET 1331	Mech. Des. B	4
MET 1392	Tech. Lab. B	2	MET 1393	Tech. Lab. C	2
MET 1371	Fluids B	4	MET 1342	Ref. & Air Cond.	4
MET 1396	Machine Shop or	4	_____	Soc. Sc./Hm. Elctv.	4
IIS _____	Elective or	4	_____	Technical Elective	4
SPC _____	Communctn. Electv.	4			

Fifth Year

Quarter 10			Quarter 11		
No.	Course	Q.H.	No.	Course	Q.H.
MET 1394	Tech. Lab. D	2	MET 1395	Tech. Lab. E	2
MET 1356	Eng. Econ.	4	MET 1343	Heat Transfer	4
_____	Soc. Sc./Hm. Elctv.	4	_____	Open Elective*	4
_____	Technical Elec.	4	_____	Soc. Sc./Hm. Elctv.	4
MET 1481	Materials B or	4			
MET 1416	Stress Analysis C	4			
Techn. electives must be chosen from:					
MET 1416	Stress Analysis C	4	MTH 1196	Differential Equats.	4
MET 1415	Exp. Stress Analysis	4	EET 1321	Electricity and	4
MET 1414	Mech. Vibrations	4		Electronics	
MET 1481	Materials B	4	EET 1390	Optical instrumen-	4
MET 1444	Power Gen.	4		tation	
			CHT 1381	Nuclear Technology	4

*No Phys. Ed, ROTC, Remedial.

Specimen Program in Computer Technology

First Year

Quarter 1			Quarter 2			Quarter 3		
No.	Course	Q.H.	No.	Course	Q.H.	No.	Course	Q.H.
MTH 1191	College Algebra	4	MTH 1192	Pre-Calculus	4	MTH 1193	Calculus I	4
PHY 1191	Physics I	4	PHY 1192	Physics II	4	PHY 1193	Physics III	4
ENG 1110	Fresh. Eng. I	4	ENG 1111	Fresh. Eng. II	4	ENG 1114	Fresh. Tech. Writ.	4
GET 1170	Eng. Graphics I	4	CT 1105	Intro. to Prog.	4	CT 1341	Basic Comp. Organ.	4
			PHY 1194	Physics Lab. I	2	PHY 1195	Physics Lab II	2

Second Year

Quarter 4			Quarter 5		
No.	Course	Q.H.	No.	Course	Q.H.
MTH 1194	Calculus II	4	MTH 1195	Calculus III	4
EET 1151	Circuits. Analys. I	4	EET 1152	Circuits Analysis II	4
ECN 1115	Economics I	4		SS/HUM	4
CT 1310	Fortran	4	CT 1311	"C" Language	4

Third Year

Quarter 6			Quarter 7		
No.	Course	Q.H.	No.	Course	Q.H.
EET 1311	Electronics I	4	CT 1330	Non-Num. Algo.	4
CT 1340	Mod. Prog. Tech.	4	CT 1374	Intro. to CPU Hdwre.	4
	SS/HUM	4	CT 1342	Adv. Comp. Organ.	4
CT 1345	Assembly Lang.	4	CT 1368	Semicond. Logic	4

Fourth Year

Quarter 8			Quarter 9		
No.	Course	Q.H.	No.	Course	Q.H.
CT 1375	CPU Hdwre. Arch.	4	CT 1355	Micro-Peri. Hdwre.	4
CT 1335	Num. Algo.	4	CT 1380	Data Comm. Methods	4
CT —	Comp. Tech. Elec.	4	CT —	Comp. Tech. Elective	4
CT 1369	Comp. Logic	4		Tech Elective	4

Fifth Year

Quarter 10			Quarter 11		
No.	Course	Q.H.	No.	Course	Q.H.
CT 1356	Cmplx. Per. Hdw.	4		Technical Elec.	4
CT 1360	Industry Software	4	CT 1365	Industry Hardware	4
	Arts & Sci. Elec.	4		Arts & Science Elect.	4
CT —	Comp. Tech. Elec.	4	CT 1342	Adv. Comp. Organ.	4

College of Nursing

Specimen Program for Baccalaureate Degree in Nursing

First Year

Quarter 1			Quarter 2			Quarter 3		
No.	Course	Q.H.	No.	Course	Q.H.	No.	Course	Q.H.
BIO 1140	Bas. Ani. Bio I	4	CHM 1111	Gen. Chem.	5	CHM 1112	Gen. Chem.	5
	History Elective	4	BIO 1141	Bas. Ani. Bio. II	4	BIO 1255	Hum. Anatomy	4
ENG 1100	Fresh. Eng. I	4	ENG 1111	Fresh. Eng. II	4		Elective	4
NUR 1100	Nursing	4	NUR 1101	Nursing	4	NUR 1102	Nursing	4

Second Year**Quarter 4**

No.	Course	Q.H.
BIO 1120	Bas. Microbiol.	4
PSY 1111	Fnd. Psych.	4
NUR 1200	Nursing	6
BIO 1253	Hum. Physiol. I	4

Quarter 5

No.	Course	Q.H.
BIO 1254	Hum. Physiol. II	4
PSY 1112	Fnd. Psych. I	4
SOA 1100	Soc. Anthro.	4
NUR 1201	Nursing	6

Third Year**Quarter 6**

No.	Course	Q.H.
Section I		
PSY 1241	G and D I	4
PSY 1271	Soc. Psych.	4
NUR 1301	Psych. Nursing	7

Quarter 7

No.	Course	Q.H.
Section I		
PSY 1241	G and D I	4
SOC 1100	Sociology	4
PCL 1305	Pharmac.	3
NUR 1300	Nursing	7

No.	Course	Q.H.
Section I		
PSY 1242	G and D II	4
PCL 1305	Pharmacol.	3
SOC 1100	Sociology	4
NUR 1300	Nursing	7
NUR 1302	Nurs. Trans. (R.N. only)	9

No.	Course	Q.H.
Section II		
PSY 1242	G and D II	4
NUR 1301	Nursing	7
PSY 1271	Soc. Psych.	4

Fourth Year**Quarter 8**

No.	Course	Q.H.
NUR 1400	Mat. Child Nur.*	9
_____	Hum. Elective	4
_____	Gen. Elective	4

Quarter 9

No.	Course	Q.H.
NUR 1401	Med. Surg. Nursing*	9
_____	Hum. Elective	4
_____	Gen. Elective	4

Fifth Year**Quarter 10**

No.	Course	Q.H.
NUR 1500	Com. Hlth. Nur.	9
_____	Elective	4
_____	Elective	4

Quarter 11

No.	Course	Q.H.
NUR 1501	Contemp. Nur.	5
_____	Elective (if desired)	(4)
NUR 1502	Intro. Nur. Res.	4

*Each of these courses is offered in Quarters 8 and 9, but only one is to be taken per quarter.

177 Q.H. = Minimum graduation requirement.

Degrees

The College of Nursing offers a five-year program leading to the Bachelor of Science in Nursing. The program is open to registered nurses in both day and evening sections. Students eligible for advanced placement may complete the program in less than five years.

Quantitative Requirements

Candidates for the Bachelor of Science degree must successfully complete all of the prescribed courses in the applicable curriculum. For the Bachelor of Science degree this totals 177 quarter hours. The prescribed periods of cooperative work at health agencies associated with the University are not required of the registered nurses.

College of Pharmacy and Allied Health Professions

Specimen Program in Pharmacy (Five-Year Cooperative)

First Year

Quarter 1			Quarter 2			Quarter 3		
No.	Course	Q.H.	No.	Course	Q.H.	No.	Course	Q.H.
	Electives	8	BIO 1106	Gen. Bio.	4	CHM 1122	Gen. Chem.†	5
MTH 1106	Fund. Math.* or	4	MTH 1107	Func. & Bas. Cal.* or	4	BIO 1107	Ani. Bio.	4
MTH 1107	Func. & Bas. Cal.*	4	MTH 1108	Calculus*	4	ENG 1111	Fresh. Eng. II	4
CHM 1111	Gen. Chem.	5	ENG 1110	Fresh. Eng. I	4		Elective	4
			PAH 1135	Prof. Dynamics in Hlth. Care Deliv. Sys.	4			

*Minimum math requirement: MTH 1108.

†CHM 1151, CHM 1152, General Chemistry, may be taken in place of CHM 1122, but one year of high school calculus is recommended.

Second Year

Quarter 4 (Entire Class) (Sept.-Dec.)			Quarter 4A (Entire Class) (Jan.-March)			Quarter 5 (April-June & June-Sept.)		
No.	Course	Q.H.	No.	Course	Q.H.	No.	Course	Q.H.
PHY 1201	Physics I	4	PHY 1203	Physics III	4	PAH 1204	Anat. & Phys. II	5
CHM 1264	Organic Chem.	5	CHM 1265	Organic Chem.	5	PAH 1280	Bio. Chem.	5
	A. & S. Elective	4	PCT 1230	Basic Pharm. or	3		A. & S. Elective	4
PCT 1230	Basic Pharm. or	3		A. & S. Elective	4	PHP 1303	Intrnshp. Skills	4
	Elective	4	PAH 1202	Anat. & Physiology I	5		for Hlth. Prof.	

Third Year (Transition Year)

Quarter 6			Quarter 7		
No.	Course	Q.H.	No.	Course	Q.H.
PCT 1340	Pharmaceutics	4	PCT 1350	Pharmaceutics	5
PMC 1418	Med. Chm./Pharm. I	4	PCL 1450	Pharmacol. Lab I	1
PCL 1410	Pathology	4	PCT 1320	Pharmaceu. Lab II	2
PMC 1321	Phrm. Anl. & Q.C.	4	PCL 1420	Pharm. Med./Chem. II	6
PCT 1310	Pharmaceu. Lab.	1	PHP 1304	Social Psychology	4

Fourth Year (Transition Year)

Quarter 8			Quarter 9 (Entire Class) (April-June)		
No.	Course	Q.H.	No.	Course	Q.H.
PCL 1422	Phm. Med./Chm. III	6	TOX 1300	Toxicology	4
PCT 1440	Bioph./P'kin.	4	PHP 1601	Non-Presc. Med.	4
PCL 1452	Phrmclgy. Lab II	1	PHP 1602	Clin. Phrm. Thrputcs.	5
PMC 1321	Phrm. Anl. & Q.C.	4	PCT 1441	Phrmcoknetc. Prin.	
PCT 1310	Pharmaceu. Lab	1		in Drug Therapy	4

Fifth Year

Quarter 10 (Summer)			Quarter 11 (Fall)		
No.	Course	Q.H.	No.	Course	Q.H.
PHP 1502	Clin. Pharm. Clerkship or	15	PHP 1502	Clin. Pharm. Clerkship or	15
PHP 1501	Phrm. Extrnshp. or	4	PHP 1501	Phrm. Extrnshp. or	4
PHP 1402	Paraphrmaceutics	2	PHP 1306	Com. Phrm. Mgt. or	4
PHP 1503	Prof. Prctce. Lab	1	PHP 1305	Hosp. Phrm. Mgmt.	4
PHP 1302	Phrm. Admin.	4	PHP 1304	Social Pharmacgy.	4
PHP 1303	Interper. Skills for Hlth. Prfsnls	4		Prof. Elective	4
PHP 1401	Drug Info. & Eval.	3			
	Prof. Elective	4			

Quarter 12 (Winter)			Quarter 13 (Spring)		
No.	Course	Q.H.	No.	Course	Q.H.
PHP 1502	Clin. Phrm. Cirkshp. or	15	PHP 1502	Clin. Phrm. Crksh. or	15
PHP 1501	Phrm. Extrnshp. or	4	PHP 1501	Phrm. Extrnshp. or	4
PHP 1402	Paraphrmaceutcls	2	PHP 1301	Phrm. Jrisprdnce.	4
PHP 1503	Prof. Prctce. Lab	1	PHP 1306	Comm. Phrm. Mgt. or	4
PHP 1302	Phrm. Admin.	4	PHP 1305	Hosp. Phrm. Mgt.	4
PHP 1303	Interp. Skls. for Hlth. Profsnls.	4	PHP 1304	Social Phrmaclogy.	4
PHP 1401	Drug Inf. & Eval.	3		Prof. Elective	4
	Prof. Elective	4			

NOTES: About one quarter of the class will be in PHP 1502, one quarter in PHP 1501, and one half in the classroom for each quarter. Students must take a total of 8 credits for professional electives. All 8 credits may be taken in one quarter or as outlined above.

English 1340 Writing Workshop—Middler year writing requirement can be filled by taking English 1340 upon completion of 80 Q.H. beginning with the class of 1989.

Specimen Program in Dental Hygiene*

First Year

Quarter 1			Quarter 2			Quarter 3		
No.	Course	Q.H.	No.	Course	Q.H.	No.	Course	Q.H.
CHM 1101	Gen. Chem.	4	CHM 1102	Gen. Chem.	4	BIO 1120	Microbio. Prof. Crs.	4
BIO 1150	Anat. and Phys. Prof. Courses	5	BIO 1151	Prof. Courses Anat. & Phys.	5			

Second Year

Quarter 4			Quarter 5			Quarter 6		
No.	Course	Q.H.	No.	Course	Q.H.	No.	Course	Q.H.
ENG 1110	Fresh. Eng. I Prof. Courses	4	PSY 1111	Fnd. Psych. I Prof. Courses	4	SOC 1100	Intro Soc.	4
						ENG 1111	Fresh. Eng. II Prof. Courses	4

*Students are admitted directly to the Forsyth School for Dental Hygienists and should contact the School for catalogs, applications, and complete program information by writing to:
Forsyth School for Dental Hygienists
140 The Fenway
Boston, Massachusetts 02115

Specimen Program in Medical Laboratory Science (Five-Year Cooperative)

First Year

Quarter 1			Quarter 2			Quarter 3		
No.	Course	Q.H.	No.	Course	Q.H.	No.	Course	Q.H.
MTH 1106	Fund. Math. or		MTH 1107	Func. Calculus or		ENG 1111	Fresh. Eng. II	4
MTH 1107	Func. Calculus	4	MTH 1108	Calculus	4	MLS 1111	BS Urinalysis	4
CHM 1111	Gen. Chem. I	5	CHM 1122	Gen. Chem. II	5	CHM 1221	Analyt. Chem.	4
BIO 1106	Gen. Bio.	4	BIO 1107	Anim. Bio.	4		Elective	4
ENG 1110	Fresh. Eng. I	4	PAH 1135	Prof. Dyn.	4		Comp. Sci. Elective	4
MLS 1101	Med. Lab. Orien.	1	MLS 1102	MLS Orient. II	1			

Second Year

Quarter 4
Entire Class

No.	Course	Q.H.
CHM 1264	Org. Chem. I	5
BIO 1253	Humn. Physio. I	4
MLS 1141	Microbiology	6
	Statistics Elec.	4

Quarter 4A
Entire Class

No.	Course	Q.H.
MLS 1121	Hematology I	3
MLS 1122	Hematology II	3
MLS 1131	Immunohem. Serol.	6
CHM 1265	Org. Chem. II	5

*MLT applies for Clinical.

Quarter 5

(*Regular co-op sequence starts in quarter 5.)

No.	Course	Q.H.
MLS 1642	Med. Parasit. or	3
MLS 1643	Med. Mycology	3
BIO 1254	Humn. Physgy. II	4
MLS 1151	BS Cl. Chem.	5
	Elective(s)	4-8

Third Year

Quarter 6

No.	Course	Q.H.
BIO 1260	Genet. & Devel.	4
PHY 1201	Physics I	4
PHY 1501	Physics Lab	1
	Elective(s)	8-12

*M.T. applies for Clinical.

Quarter 7

No.	Course	Q.H.
PHY 1202	Physics II	4
BIO 1261	Cell Phys. Bio.	4
BIO 1221	Gen. Micro.	3
MLS 1643	Med. Mycology or	3
MLS 1642	Med. Parasit.	3
PHY 1502	Physics Lab	1
	Elective	4

Fourth Year

Quarter 8

No.	Course	Q.H.
MLS 1645	Adv. Cl. Micro. I*	2
MLS 1651	Adv. Cl. Chem. I*	2
MLS 1621	Adv. Hem. I*	3
MLS 1646	Adv. Cl. Mc. II**	2
MLS 1652	Ad. CL. Cm. II**	2
MLS 1631	Adv. Imm. Hem.**	2
MLS 1523	Hem. Mt. Apst.	4
	and	
MLS 1532	Immunohem. AS	3
	or	
MLS 1544	Clin. Micro. AS	7
	or	
MLS 1552	Clin. Chem. AS	7
MLS 1890	Undergrad Rsch.	2
	(optional)	

*Fall

**Winter

Quarter 9

No.	Course	Q.H.
MLS 1523	Hematology AS	4
	and	
MLS 1532	Immunohem AS or	3
MLS 1544	Clin. Mcr. AS or	7
MLS 1552	Clin. Chem. AS	7
MLS 1622	Hematology II	2
MLS 1647	Adv. Clin. Micro. III	2
MLS 1653	Adv. Clin. Chem. III	2
MLS 1890	Undrgrd. Rsch. (Opt.)	2

Fifth Year

Quarter 10

No.	Course	Q.H.
MLS 1523	Hematology AS	4
	and	
MLS 1532	Immunohem. AS	3
	or	
MLS 1544	Clin. Micro. AS	7
	or	
MLS 1552	Clin. Chem. AS	7
MLS 1646	Clin. Micro. II**	2
MLS 1631	Adv. Immunohematl.**	2
MLS 1652	Adv. Clin. Chm. II**	2
	or	
MLS 1645	Adv. Clin. Micro.*	2
	and	
MLS 1651	Adv. Clin. Chem.*	2
	and	
MLS 1621	Hematology I*	3

*taken Fall quarter

**taken Winter quarter

Quarter 11

No.	Course	Q.H.
MLS 1681	MLS Sen. Sem.	2
MLS 1665	Med. Lab. Mgmt.	2
MLS 1661	MLS Ed.	2
	Electives	4-12
MLS 1831	Adv. Immuno.	4
MLS 1832	Adv. Immuno. Lab.	1
	(optional)	

Elective Distribution Requirements

12 Q.H. of Humanities

8 Q.H. of Social Sciences; 4 Q.H. Prof. Dynamics

16-28 Q.H. of Free Electives; including one Computer Science and one Statistics course.

MATH Competency to the level of MTH 1107 is required.

English 1340 Writing Workshop—Middle year writing requirement can be filled by taking English 1340 upon completion of 80 Q.H. beginning with the class of 1989.

Specimen Program in Health Record Administration (Five-Year Cooperative)

First Year

Quarter 1			Quarter 2			Quarter 3		
No.	Course	Q.H.	No.	Course	Q.H.	No.	Course	Q.H.
MTH 1101	Bas. Math*	4	MTH 1103	Bas. Math.*	4	BIO 1121	Intro. Microbio.	3
BIO 1106	Gen. Bio.	4	BIO 1107	Anim. Bio.	4	PSY 1112	Fnd. Psych. II	4
PSY 1111	Fnd. Psych. I	4	PAH 1135	Dynam. of Hlth. Care	4	ENG 1111	Fresh. Eng. II	4
ENG 1110	Fresh. Eng. I	4		A. & S. Elective	4		A. & S. Elective	4
HRA 1100	Orient. Med.	1						
	Rec. I							

Second Year

Quarter 4			Quarter 5		
No.	Course	Q.H.	No.	Course	Q.H.
SOC 1100	Intro. Socio. or	4	MTH 1150	Prob. Stat. & Comp.	4
SOA 1100	Anthropology		BIO 1151	Hum. Anat. II	5
HRA 1101	Lng. of Hlt. Prf.	1	HRM 1432	OBI	4
	A. & S. Elective	4		A. & S. Elective	4
	Elective	4			
BIO 1150	Hu. Anat. 1	5			

Third Year

Quarter 6				Quarter 7			
No.		Course	Q.H.	No.		Course	Q.H.
HRA	1310	Hosp. Law	2	HRA	1340	Fnd. Med. Sci. II	3
HRA	1320	Lang. of Medicine	4	HRA	1420	Hlth. Rec. Sci. II	4
HRA	1330	Fnd. Med. Sci. I	3	HRA	1610	Int. DP for Hlth. Sci.	4
HRA	1410	Hlth. Rec. Sci. I	4	SPC	1115	Intro. Commun.	4
		Elective	4				

Fourth Year

Quarter 8				Quarter 9			
No.		Course	Q.H.	No.		Course	Q.H.
HRA	1430	Hlth. Rc. Sc. III	4	HRA	1440	Hlth. Rec. Sci. IV	4
HRA	1450	Appl. Hlth. Rec.	3	HRA	1540	Qual. Assur.	4
		Dir. Prac. I		HRA	1460	Appl. Hlth. Rec.	2
HRA	1510	Org. & Mngt.	4			Dir. Pract. II	
		Med. Rec. Dp. I				(7 days)	
HRA	1620	Sys. Anal.	4	HRA	1520	Mngt. of Hlth.	4
HRA	1580	Hlth. Record Ed.	2			Rec. Service II	
				HRA	1640	Med. Comp. Appl.	4

Fifth Year

Quarter 10				Quarter 11			
No.		Course	Q.H.	No.		Course	Q.H.
HRA	1530	Mgmt. of Hlth. Rec. Service III	4	HRA	1560	Sem. Hlth. Rec.	2
				HRA	1570	Hlth. Rec. Prof.	2
HRA	1630	App. Hlth. Stats.	4	HRA	1800	Indep. Study	4
				HRA	1470	Appl. Hlth. Rec. Sci III	4
						Elective	4

*Students may substitute MATH 1106 (4 Q.H.) and 4 Q.H. Elective for MTH 1101 and MTH 1103.

HRA 1810 Special Topics 1, 2 QH

HRA 1820 Special Topics 2, 2 QH

Assigned by Program Director

English 1340 Writing Workshop—Middler year writing requirement can be filled by taking English 1340 upon completion of 80 Q.H. beginning with the class of 1989.

Specimen Program in Respiratory Therapy B.S.**(Five-Year Cooperative)****First Year**

Quarter 1			Quarter 2			Quarter 3		
No.	Course	Q.H.	No.	Course	Q.H.	No.	Course	Q.H.
MTH 1106	Fund. Math.	4	MTH 1107	Func. and Bas. Calc.	4	ENG 1111	Fresh. Eng. II	4
CHM 1111	Gen. Chem.	5	BIO 1141	Bas. Ani. Bio. II	4	BIO 1120	Microbio.	4
BIO 1140	Bas. Ani. Bio.	4	PHY 1209	Basic Physics	4	CHM 1122	Gen. Chem.	5
ENG 1110	Fresh. Eng. I	4	RTH 1112	Resp. Ther. Sem. II	1	RTH 1113	Resp. Ther. Sem. III	1
RTH 1111	Resp. Ther. Sem. I	1	PAH 1135	Prof. Dynamics in the Hlth. Care Deliv. Sys.	4		A. & S. Elective	4

Second Year

Quarter 4			Quarter 4A			Quarter 5		
No.	Course	Q.H.	No.	Course	Q.H.	No.	Course	Q.H.
PAH 1202	Anat. Physiol. I	5	PCL 1309	Phrmcl./Resp. Care	4	RTH 1403	Prof. Prac. Lab III	1
RTH 1301	Prof. Prac. Lab I	1	PAH 1204	Anat. Physiol. II	5	RTH 1414	Clin. Sem. I	1
RTH 1320	Cardio. Pul. Phys.	4	RTH 1302	Prof. Prac. Lab II	1	RTH 1433	Resp. Care/Md. Srg.	4
RTH 1331	Patient Care	4	RTH 1332	Intro. Resp. Care	4	RTH 1411	Clin. Prac.	6
	A. & S. Elective	4	RTH 1321	Cardio.-Pul. Dis.	4		A. & S. Elective	4

Third Year

Quarter 6			Quarter 7		
No.	Course	Q.H.	No.	Course	Q.H.
RTH 1404	Prf. Prac. Lab IV	1	RTH 1505	Cardio.-Pul. Lab.	1
RTH 1412	Clin. Prac. II	6		Prac.	
RTH 1415	Clin. Sem. II	1	RTH 1435	Pediatrics	2
RTH 1434	Resp. Care/Crit. Patient	4	RTH 1573	A. & S. Elective	4
PCL 1410	Pathology	4	PHL 1165	Card.-Pul. Lab Tnqs.	4
				Prob. in Med.	4

Fourth Year

Quarter 8			Quarter 9		
No.	Course	Q.H.	No.	Course	Q.H.
CHM 1264	Organic Chem I	5	CHM 1265	Organic Chem. II	5
RTH 1516	Adv. Resp. Thrpy. Sem. I	1	RTH 1517	Adv. Clin. Sem. II	1
RTH 1571	Adv. Life Sup. Sys. I	4	RTH 1574	Prof. Elective	4
RTH 1578	Adv. Med. Monit. A. & S. Elective	4		Adv. Clin. Physiology	4

Fifth Year

Quarter 10			Quarter 11		
No.	Course	Q.H.	No.	Course	Q.H.
RTH 1518	Adv. Clin. Sm. III	1	RTH 1519	Adv. Clin. Sem. IV	1
RTH 1576	Neonatology	4	RTH 1512	Practicum	4
RTH 1801	Dir. Study	2		A. & S. Electives	4
RTH 1511	Practicum	4	RTH 1802	Dir. Study	2
	A. & S. Elective	4		Prof. Elective	4

English 1340 Writing Workshop—Middle year writing requirement can be filled by taking English 1340 upon completion of 80 Q.H. beginning with the class of 1989.

Specimen Program in Toxicology (Five-Year Cooperative)

First Year

Quarter 1			Quarter 2			Quarter 3		
No.	Course	Q.H.	No.	Course	Q.H.	No.	Course	Q.H.
MTH 1106	Math	4	MTH 1107	Math	4	MTH 1108	Calculus	4
	Elective	4	CHM 1111	Gen. Chem.	5	ENG 1111	Fresh. Eng. II	4
BIO 1106	Gen. Bio. I	4	BIO 1107	Anim. Bio.	4		Elective	4
ENG 1110	Fresh. Eng. I	4	TOX 1100	Tox. Orien.	1	CHM 1122	Gen. Chem.	5
			PAH 1135	Prof. Dynamics in Hlth. Care Deliv. Sys.	4			

Second Year

Quarter 4			Quarter 4A (entire class)			Quarter 5		
No.	Course	Q.H.	No.	Course	Q.H.	No.	Course	Q.H.
PHY 1201	Physics	4	PHY 1203	Physics	4	PAH 1280	Gen. Biochem.	5
CHM 1264	Org. Chem.	5	CHM 1265	Org. Chem.	5	MTH 1150	Prob. Stat.	4
PAH 1202	Anat. & Phys. I	5	PAH 1204	Anat. & Phys. II	5	MLS 1151	BS Cl. Chem.	5
	Elective	4					Elective	4

Third Year

Quarter 6			Quarter 7		
No.	Course	Q.H.	No.	Course	Q.H.
BIO 1120	Microbio.	4	PCL 1420	Phrml. Med. Chm. II	6
PMC 1418	Med. Chm. Phrm. I	4	TOX 1300	Toxicology I	4
PCL 1410	Pathology	4	PCL 1450	Pharmacol. Lab	1
			TOX 1321	Biochem. Tox.	3

Fourth Year

Quarter 8			Quarter 9		
No.	Course	Q.H.	No.	Course	Q.H.
PCL 1422	Pharmacol. Med. Chem. III	6	TOX 1801	Special Topics	4
PCL 1452	Pharmacol. Lab II	1	TOX 1300	Tox. I or Elective	4
TOX 1305	Tox. II	5	CHM 1461	Id. Org. Comp.	3
TOX 1321	Biochem. Tox.	3		A. & S. Elective	4
PMC 1321	Pharm. Anal. or	4			
CHM 1221	Anal. Chem.	4			

Fifth Year

Quarter 10			Quarter 11		
No.	Course	Q.H.	No.	Course	Q.H.
TOX 1302	Tox. III	4	HSL 1506	Comm. Health	4
PCT 1440	Bio. Pharm./Pharm.	4		Elective	4-8
CHM 1431	Inst. Analysis	5		Tox. Colloq.	3
	Elective	4	AFR 1115	Epidemiology	4
			PCL 1505	Drug Intrac.	4

English 1340 Writing Workshop—Middler year writing requirement can be filled by taking English 1340 upon completion of 80 Q.H. beginning with the class of 1989.

University College Alternative Freshman-Year Program

Business Track: One-Year Program¹

Quarter 1			Quarter 2			Quarter 3		
No.	Course	Q.H.	No.	Course	Q.H.	No.	Course	Q.H.
MTH 1000	Math I*	4	MTH 1010	Math II*	4	MTH 1113	Math for Bus.*	4
ENG 4013	Fund. of Eng. I	4	ENG 4014	Fund. of English II	4	HST 4111	Hist. of Civ. B	4
ED 4003	Int. Language Skills Dev. I	4	ED 4004	Int. Language Skills Dev. II	6	MGT 4110	Survey of Bus.	4
_____	Directed Elec.**	4	HST 4110	Hist. Civ. A or Directed Elective**	4	ECN 4601	Economics I or Directed Elective	4

¹January admission: same courses offered Winter, Spring, Summer quarters.

Criminal Justice, Education, or Arts and Sciences Track: One-Year Program

Quarter 1			Quarter 2			Quarter 3		
No.	Course	Q.H.	No.	Course	Q.H.	No.	Course	Q.H.
MTH 1000	Math I*	4	SOC 4010	Sociology I	4	SOC 4011	Sociology II	4
ENG 4013	Fund. of Eng. I	4	ENG 4014	Fund. of English II	4	HST 4111	Hist. of Civ. B	4
ED 4003	Int. Language Skills Dev. I	4	ED 4004	Int. Language Skills Dev. II	4	POL 4106	Intro. to Politics	4
_____	Directed Elec.**	4	HST 4110	Hist. Civ. A or Directed Elective**	4	_____	Elective	4

Health Sciences Track

Quarter 1			Quarter 2			Quarter 3		
No.	Course	Q.H.	No.	Course	Q.H.	No.	Course	Q.H.
MTH 1010	Math. II	4	MTH 1106	Fund. of Math.	4	BIO 1140	Basic Animal Bio. I	4
ENG 4013	Fund. of Eng. I	4	CHM 1111	Gen. Chem. I	5	CHM 1112	General Chem. II	5
CHM 1110	Pre-Chemistry	5	ED 4002	Int. Language Skills Dev. II	2	_____	Directed Elective	4
ED 4001	Int. Language Skills Dev. I	2	ENG 4014	Fund. of English II	4	_____	Directed Elective	4

Quarter 4

No.	Course	Q.H.
BIO 1141	Basic Animal Bio. II	4
MTH 1107	Functions & Calc.	4
_____	Directed Elective	4

*Mathematics courses will vary depending on placement tests.

**Eligible students may take HST 4110 (Q1) followed by an elective (Q2).

The Writing Center

Telephones: 437-2328 437-3086

The Writing Center offers one-to-one tutorial help in writing to all students and staff at Northeastern University. It will help students find a topic, organize and develop ideas, learn how to edit and proofread for problems in grammar, punctuation, and spelling. The Writing Center is open Monday through Friday from 9:00 a.m. to 4:00 p.m. To get help at the Writing Center, stop by room 102 Cahners to make an appointment.

MIDDLER YEAR WRITING REQUIREMENT 1986-1987

The Middler Year Writing Requirement (MYWR) is effective for freshmen who entered the University in fall 1984 and after and for transfer students who entered in fall 1985 and after. All Middlers (i.e., students, including nonco-op students, who have earned 80+ quarter hours) must complete this graduation requirement at Northeastern. Successful completion of Freshman English is a prerequisite. To complete the Middler Year Writing Requirement, students must earn a grade of C (2.0) or better in a four-credit writing course or a pass in a one-credit, pass/fail Writing Workshop.

This University requirement was instituted to help students write better in their major courses and in their professional workplaces. The four primary courses (see below) are therefore designed to be interdisciplinary so that students may write in subjects related to their majors or other related topics.

Guidelines for completing the Middler Year Writing Requirement for each college follows.

College of Arts and Sciences

For the 1986-1987 academic year, Intermediate Writing (ENG 1350) is the *strongly* recommended course for all Arts and Sciences students to fulfill the Middler Year Writing Requirement. Students may, however, also satisfy the requirement by taking a four-credit writing course from an approved MYWR list in the English or Journalism departments.

Boston-Bouve College Of Human Development Professions requires that students complete the Middler Year Writing Requirement as follows: Health, Sport, and Leisure Studies majors will take a four-credit writing course from the approved MYWR list. Physical Therapy majors will take either a four-credit writing course from the approved MYWR list or a one credit writing workshop (ENG 1340) in the *senior* year; all other majors will take either a four-credit writing course from the approved MYWR list or a one-credit writing workshop (ENG 1340) in the *middler* year.

College of Business Administration

The College of Business Administration has designated Writing for the Professions: Business Administration (ENG 1381) as the MYWR course for business majors.

College of Computer Science

The College of Computer Science Middlers are required to take Technical Writing (ENG 1125) in the spring or summer quarter to fulfill the MYWR.

College of Criminal Justice

The College of Criminal Justice has designated Intermediate Writing (ENG 1350) as the *primary* course that students will be required to take to fulfill the MYWR. In exceptional circumstances, another writing course may be substituted with the permission of the Dean of the College through the petition process.

College of Engineering

Chemical, civil, and industrial engineering students will take Technical Writing (ENG 1125) and mechanical and electrical engineering students will take Writing Workshop (ENG 1340) to fulfill the MYWR.

College of Engineering Technology

All students in the College of Engineering Technology will take Writing Workshop (ENG 1340) in the Middler Year to complete the MYWR.

College of Nursing

The College of Nursing has designated Intermediate Writing (ENG 1350) in the Fall and Winter Quarters of the Junior Year as the MYWR course.

College of Pharmacy and Allied Health Professions

The College of Pharmacy and Allied Health Professions has designated Writing Workshop (ENG 1340) as the MYWR course.

MIDDLER YEAR WRITING REQUIREMENT list:

Primary Courses:

- ENG 1350 Intermediate Writing
- ENG 1381 Writing for the Professions: Business Administration
- ENG 1125 Technical Writing
- ENG 1340 Writing Workshop

Approved Four-Credit Writing Courses:

- ENG 1351 Creative Writing
- ENG 1352 Advanced Writing
- ENG 1358 Fiction Workshop
- ENG 1359 Nonfiction Workshop
- ENG 1360 Topics in Writing: Reading and Writing Nonfiction
- ENG 1370 Technical Writing II
- ENG 1371 Writing for the Computer Industry
- ENG 1380 Writing for Professions: Health Professions
- ENG 1382 Writing for Professions: Criminal Justice
- JRN 1320 Radio Newsgathering and Writing
- JRN 1421 Television Newswriting
- JRN 1432 Local Government Reporting
- JRN 1451 Advertising Copywriting
- JRN 1460 Public Relations Practice

All of these courses, if taken to complete the Middler Year Writing Requirement, have as prerequisites the successful completion of Freshman English and 80+ quarter hours. Consult your College advisor or the MYWR Office (433 HO) if you have any questions.

SPECIAL NOTE

Classes at Northeastern University are scheduled in different modules.

In assessing quarter weights for courses, the following statement applies: *One quarter-hour of credit is equal to 50 minutes of instruction per week, plus two hours of preparation.*

The Scheduling Office (126 HA) maintains all quarter-hour weights for courses. In the event of error in any publication, the academic record will reflect the correct quarter hours applicable to any degree requirement.

Some course titles may change, but the course number remains the same. Be sure you do not register for a course you may have already taken.

Basic College Compensatory Programs for 1986-1987

The Basic College Compensatory Program generally encompasses six courses, each bearing four quarter hours of credit, which are to be offered in the sequences indicated below. Certain freshmen may be assigned to any one of these course sequences as applicable on the basis of testing administered during orientation week, precollegiate academic credentials, or, in English, performance in C ENG 1110, Freshman English I. The same sequence is offered Winter/Spring for freshmen who enter in January.

Quarter 1:

- MTH 1000 Mathematical Preliminaries I
- ENG 1110 Freshman English I or
- ENG 1013 Fundamentals of English I
- ED 1003 Reading/Study Skills

Quarter 2:

- MTH 1010 Mathematical Preliminaries II
- ENG 1014 Intensive Writing

Specifically, MTH 1000 and MTH 1010 are to precede both the MTH 1106, MTH 1107, and MTH 1108 (nonbusiness math) sequence and the MTH 1113, MTH 1114, and MSC 1199 (business math) sequence. Certain freshmen may be assigned to ENG 1013 and ENG 1014, as applicable, on the basis of precollegiate academic credentials or may be assigned to ENG 1014 (Intensive Writing) on the basis of their performance in ENG 1110 (standard Freshman English I). Students must earn a C or better grade in ENG 1014 or ENG 1110 to proceed to ENG 1111 (standard Freshman English II), the ENG 1111- ENG 1113 sequence for Engineers, and, in the case of Lincoln College, the ENG 1111- ENG 1114 (freshman Technical Writing) sequence. Students whose work in ENG 1110 is unacceptable for success in ENG 1111, Freshman English II, will receive a grade of S and must complete ENG 1014.

Schedule for Continuation of Compensatory Programming in the Basic Colleges for 1986-1987

These courses are approved or disapproved for credit, except where noted, by the faculties of the individual colleges and are, therefore, subject to change.

	C ENG 1110* or C ENG 1013* [for native Eng- lish speakers]				
	Writing I	ENG 1014* Writing II	MTH 1000* Math Prelim. I	MTH 1010* Math Prelim. II	ED 1003 Read./ Study Skills
Arts and Sciences	accepted	accepted	accepted	accepted	accepted
B-B Phys. Ther.	not accepted	not accepted	not accepted	not accepted	not accepted
Phys. Educ.	accepted	accepted	accepted	accepted	accepted
Rec. and Leis. Stud.	accepted	accepted	not accepted	not accepted	not accepted
Health Educ.	accepted	accepted	accepted	accepted	accepted
Bus. Admin.	accepted	accepted	accepted	accepted	not accepted
Crim. Justice†	accepted	accepted	accepted	accepted	accepted
Education	accepted	accepted	accepted	accepted	accepted
Engineering‡	not applicable	not applicable	not applicable	not applicable	not applicable
Engineering Technology	accepted	accepted	not applicable	not applicable	not applicable
Nursing B.S.	accepted	accepted	not accepted	not accepted	not accepted
Pharmacy and§	accepted	accepted	not accepted	not accepted	not accepted
Allied Health Prof.	w/o credit				
Computer Science‡	not applicable	not applicable	not applicable	not applicable	not applicable

*When graded pass/fail and therefore not included in the student's quality-point average.

†Freshmen in the College of Criminal Justice are not required to take a mathematics course in the freshman year. They can elect, however, to take MTH 1000 or MTH 1010 to prepare themselves for Fundamentals of Mathematics MTH 1106 as upperclassmen.

‡Although the Colleges of Engineering and Computer Science do not allow MTH 1000 or MTH 1010 to be taken for academic credit, they do offer a special course sequence in college calculus with algebra and trigonometry (MTH 1120 and MTH 1121) for engineering freshmen judged to have deficiencies in mathematics. The courses involve extra hours of work but cover the same material as the regular freshman calculus sequence in the College of Engineering.

§Although the College of Pharmacy and Allied Health Professions does allow ENG 1013 or ENG 1110 (with a grade of S) to appear on the permanent record, it will only allow ENG 1110 or ENG 1014 (with a letter grade) for credit. Students completing the ENG 1110-ENG 1014 or ENG 1013-ENG 1014 sequence will have to make up the four-credit elective that was displaced by ENG 1110 or ENG 1013.

Chemical Engineering

The course descriptions listed under Chemical Engineering are intended to show the general scope of the subject that will be covered. Since courses are continually updated, specific topics or methods of approach may vary from term to term. In addition to meeting course prerequisites, students are expected to take each chemical engineering course in the sequence shown on the specimen program sheet.

CHE 1201 Chemical Engineering Calculations I

4 Q.H.*

(Prereq. CHM 1132 and CHM 1138)

This course examines application of fundamental laws of mass and energy conservation to chemical and physical processes. In this course the primary emphasis is on material balances. A computational laboratory is included to aid students in improving facility in handling problems typical of the course.

CHE 1205 Computation Lab

2 Q.H.*

(Prereq. Taken with CHE 1201)

Laboratory sessions to aid student in problem formulation and solution. The assignments are based on material presented in CHE 1201. Emphasis is placed on computer software applications.

CHE 1211 Chemical Engineering Thermodynamics I

4 Q.H.

(Prereq. CHE 1201 and CHE 1205)

Topics include the first law and its application to batch and flow systems, heat effects in chemicals, and physical properties of real fluids. Fundamental principles and mathematical relations are applied to the analyses of and solutions to a variety of engineering problems.

CHE 1300 Chemical Engineering Calculations II

4 Q.H.

(Prereq. CHE 1201 and CHE 1211)

This course emphasizes energy balances and the simultaneous application of mass and energy conservation laws in steady and unsteady state processes. Problems are selected from chemical processing industry applications.

CHE 1310 Chemical Engineering Thermodynamics II

4 Q.H.

(Prereq. CHE 1300)

This course covers thermodynamic properties of mixtures; fugacity and the fugacity coefficients from equations of state for gaseous mixtures; liquid phase fugacities and activity coefficients for liquid mixtures; phase equilibria; the equilibrium constant for homogeneous gas-phase reactions; and extension of theory to handle simultaneous reactions, heterogeneous reactions, and reactions in solution.

CHE 1320 Momentum Transport

4 Q.H.

(Prereq. CHE 1300)

This course includes physical properties of fluids, pipe flow for process application, macroscopic balances and their application, microscopic balances, and introductions to boundary layer and turbulent flow theory.

CHE 1401 Transport Phenomena I

4 Q.H.

(Prereq. CHE 1301)

The mechanisms of momentum transport in fluid-flow phenomena are described. Velocity distributions for

Newtonian fluids in the laminar and turbulent flow regimes are derived and utilized in the analysis of elementary fluid-flow problems.

CHE 1402 Transport Phenomena II

4 Q.H.

(Prereq. CHE 1401 and CHE 1302)

Mass and heat transport by the mechanisms of molecular and bulk motion are described. A variety of elementary physical and chemical transport problems are analyzed in terms of these mechanisms.

CHE 1410 Experimental Methods I

4 Q.H.*

(Prereq. CHE 1302)

Experimental approach to solving chemical engineering problems and preparing reports to detail the results and their interpretations. Experiments illustrating the fundamental unit operations are performed.

CHE 1411 Experimental Methods II

4 Q.H.*

(Prereq. CHE 1410)

A continuation of CHE 1410, requiring more advanced experimentation and more sophisticated reports.

CHE 1421 Chemical Engineering Kinetics

4 Q.H.

(Prereq. CHE 1420)

Topics include fundamental theories of the rate of chemical change in homogeneous reacting systems; integral and differential analysis of kinetic data; design of batch and continuous-flow chemical reactors; introduction to heterogeneous reactions and reactor design.

CHE 1430 Heat Transport

4 Q.H.

(Prereq. CHE 1310 and CHE 1320)

Fundamentals of heat transport are presented; design of heat transfer equipment and estimation of heat transfer rates is also covered.

CHE 1440 Separation Processes

4 Q.H.

(Prereq. CHE 1430 and CHE 1421)

This course describes the principles utilized in the physical separation of chemical mixtures. Separation techniques covered include filtration, evaporation, extraction, and distillation. The concept of equilibrium stages is introduced and applied to the separation of binary mixtures by liquid-liquid extraction and by continuous distillation.

CHE 1450 Chemical Engineering Economics

4 Q.H.

(Prereq. ENC 1115)

Financial decision-making techniques are introduced and applied to problems of production, storage, transportation, and utilization of chemical resources to meet societal needs.

* Lab fee required.

CHE 1501 Process Design I 6 Q.H.*

(Prereq. CHE 1402 and CHE 1420)

Process design of a chemical plant. Topics include process selection, material and energy balances, equipment selection and/or design, elements of instrumentation, flowsheets, and cost estimates.

CHE 1502 Process Design II 6 Q.H.*

(Prereq. CHE 1501)

This course is a continuation of CHE 1501. A more complex design is required. Additional elements of process design are studied.

CHE 1503 Projects I 6 Q.H.*

(Prereq. Senior standing and consent of Dept.)

This course offers individual research related to some phase of chemical engineering. Open only to students selected by the department head on the basis of scholarship and proven ability.

CHE 1504 Projects II 6 Q.H.*

(Prereq. CHE 1503)

The course offers a continuation of the research work undertaken in CHE 1503.

CHE 1510 Principles of Nuclear Engineering

(Prereq. Senior standing)

4 Q.H.

The course offers an introduction to the principles of nuclear engineering. Elements of nuclear physics, reactor physics, and radiation safety are presented, together with engineering techniques specific to the nuclear industry.

CHE 1511 Mathematical Methods in Chemical Engineering

(Prereq. Senior standing)

4 Q.H.

The course examines formulation and solution of problems taken from chemical and engineering studies that require advanced mathematical methods. Emphasis is placed primarily on the formulation step, although numeric and analytic solution techniques for solving sets of algebraic equations and for solving ordinary and partial differential equations are discussed.

CHE 1512 Chemical Process Control 4 Q.H.

(Prereq. CHE 1411 and CHE 1440)

The course focuses on principles of automatic control with applications to chemical processing systems. Topics such as process modeling and control system design are included.

CHE 1513 Introduction to Optimization 4 Q.H.

(Prereq. Senior standing)

Elementary optimization techniques, such as gradient methods, pattern search, linear programming, and dynamic programming, are described and applied to a variety of elementary physical and chemical problems.

CHE 1514 Special Topics 4 Q.H.

(Prereq. Senior standing)

Chemical engineering topics of interest to the staff member conducting the class are presented for study.

CHE 1515 Chemical Energy Economics 4 Q.H.

(Prereq. Senior standing)

Financial decision-making techniques are introduced and applied to the problems of production, transportation, and utilization of chemical energy resources such as petroleum, natural gas, coal, and shale oil.

CHE 1516 Mass Transfer Operations 4 Q.H.

(Prereq. Senior standing)

Course focuses on calculation and design methods used in processes involving mass transfer. Topics covered include vapor-liquid equilibria for binary and multicomponent systems, multicomponent distillation, absorption, and extraction.

CHE 1517 Analysis of Chemical Processes 4 Q.H.

(Prereq. CHE 1420, CHE 1421, and senior standing)

Course focuses on methods and reactions used for making chemical products on a large scale. Topics covered include types of physical and chemical equilibria, flow-sheet patterns, energy management, and catalytic and noncatalytic rate problems. A number of situations involving simultaneous application of the above topics in process analyses are studied.

CHE 1518 Management in the Chemical Industries

(Prereq. Senior standing in engineering)

4 Q.H.

The course focuses on principles of management as applied to the chemical process industries. Case studies are used to supplement lectures and discussion.

CHE 1519 Kinetics of Polymerization Process

(Prereq. CHE 1421, CHM 1262, and senior standing)

4 Q.H.

The course focuses on the mechanisms by which polymeric materials are assembled via chemical reaction. Reaction-rate models based on these mechanisms are utilized to investigate the effect of reaction parameters on the chemical and physical structure of the polymeric product. The specific polymerization processes considered are free radical addition, condensation, and ionic.

CHE 1520 Pollution Control In Chemical Industries

(Prereq. Senior standing)

4 Q.H.

Students are instructed in fundamental operations for handling environmental problems in the chemical process industries. Water quality requirements and industrial waste characteristics are discussed.

CHE 1521 Chemical Process Development 4 Q.H.

(Prereq. Senior standing)

The course offers a study of the manner in which a chemical process evolves from the research laboratory to full-scale production. Typical processes are used as illustrations. Topics covered include economic factors, safety factors, batch vs. continuous operation, process evaluation, developing the flow sheet, and scale-up considerations.

* Lab fee required.

CHE 1522 Corrosion Engineering 4 Q.H.

(Prereq. Senior standing)

The course covers the fundamentals of corrosion engineering: theories of corrosion, corrosion testing, corrosion protection, and selected relevant topics.

CHE 1523 Catalysis**4 Q.H.**

(Prereq. Senior standing)

The course offers an introduction to heterogeneous catalytic processes. Topics include mechanistic explanations and modeling of catalyzed reactions. The course culminates with application of catalysts to industrial practice.

Civil Engineering

The course descriptions listed under Civil Engineering are intended to show the general scope of the subject that will be covered. Since courses are continually updated, specific topics or methods of approach may vary from term to term.

CIV 1210 Structural Mechanics I 4 Q.H.

(Prereq. PHY 1222; MTH 1227 concurrently)

Topics normally include statics of particles and rigid bodies in two and three dimensions; analysis of internal forces in trusses and beams; centroids and centers of gravity of lines, area, and volumes; moments of inertia of areas and masses.

CIV 1211 Structural Mechanics II 4 Q.H.

(Prereq. CIV 1210)

Course material includes analysis of stress and strain; mechanical properties of materials; elastic analysis of stresses and deformations of members subject to axial load, torsion, shear, and moment; introduction to column behavior.

CIV 1212 Structural Mechanics III 4 Q.H.

(Prereq. CIV 1211)

Continuation of CIV 1211. Topics include torsion, general bending, curved members, shear flow, shear center, combined stresses including elastic and plastic behavior, continuation of column buckling, and introduction to yield and fracture criteria.

CIV 1220 Structural Analysis I 4 Q.H.

(Prereq. CIV 1211)

Topics normally include review of reactions, shear and bending moment diagrams, bar forces in trusses, deflections by virtual work and moment area methods; and analysis of indeterminate structures by consistent deformations, slope deflection, and moment distribution.

CIV 1222 Structural Analysis I 4 Q.H.

(Prereq. CIV 1220)

This course concentrates on matrix analysis of indeterminate structures using both flexibility and stiffness approaches; computer applications to analysis of framed structures.

CIV 1224 Structural Analysis III 4 Q.H.

(Prereq. CIV 1220)

This course is a continuation of CIV 1220. Topics normally include slope deflection; moment distribution; effects of axial loads; symmetry; antisymmetry; nonprismatic members; influence lines for determinate and indeterminate structures, approximate methods of lateral load analysis and shear wall action.

CIV 1226 Structural Analysis & Design Lab 2 Q.H.

(Prereq. CIV 1220 taken concurrently)

Course material includes lectures, experimental studies, computation laboratories, and computer projects to develop student's knowledge of structural behavior and understanding of the design and analysis of structures.

CIV 1240 Design of Reinforced Concrete Structures I 4 Q.H.

(Prereq. CIV 1220)

Course material includes review of mechanical properties of steel and concrete; behavior and design of reinforced concrete beams for shear, moment, and bond; design of stocky columns for axial load and moment. Emphasis of course is on strength design.

CIV 1241 Design of Reinforced Concrete Structures II 4 Q.H.

(Prereq. CIV 1240)

Topics normally include design of slender columns, foundations, multistory buildings with one-way and two-way floor systems.

CIV 1250 Design of Steel Structures I 4 Q.H.

(Prereq. CIV 1220)

The course focuses on design of steel members subject to tension, compression, bending, and combinations of loading; design of connections, braced frames, and rigid frames.

CIV 1251 Design of Steel Structures II 4 Q.H.

(Prereq. CIV 1250)

Topics normally include design of steel plate girders, composite construction in bridges and buildings, plastic analysis and design, and the design of high-rise buildings subject to lateral loads.

CIV 1310 Fluid Mechanics**4 Q.H.**

(Prereq. CIV 1210)

The course gives an introduction to both the statics and dynamics of fluid mechanics. Topics include properties of fluids; pressure variation in water and air; pressure force on surfaces and submerged bodies, continuity, momentum and energy principles; dimensional analysis and hydraulic similitude; flow in closed conduits, frictional and local losses in pipes and systems; problems in steady flow.

CIV 1320 Hydraulic Engineering**4 Q.H.**

(Prereq. CIV 1310)

The course covers a variety of topics including: pipe networks; water hammer; pumps, pump selection; pipe-pump combinations; flow in open channels, uniform flow, gradually varied flow, hydraulic jump; drag forces on bodies; principles of hydrology, unit hydrograph, and rainfall-runoff relationships; and some aspects of ground water and well hydraulics.

CIV 1340 Environmental Engineering I**4 Q.H.**

(Prereq. CHM 1132)

The course focuses on engineering approaches to protection and management of the environment. Topics include assessment of environmental quality; introduction to water and wastewater technology, air pollution control, and solid waste management.

CIV 1341 Environmental Engineering II**4 Q.H.**

(Prereq. CIV 1340 and CIV 1310)

The course concentrates on development of fundamental physical, chemical, and biological phenomena of water and wastewater systems with engineering applications in water technology from source to ultimate disposal.

CIV 1350 Environmental and Hydraulics Lab**4 Q.H.**

(Prereq. CIV 1340; CIV 1320 concurrently)

The course includes lectures, laboratory and field experiments in environmental and hydraulic engineering. Experiments in hydraulics area include: fluid properties, hydrostatics, drag forces, flow in pipes and channels as well as pumps and turbines. Experiments in the environmental area include physical, chemical, and biological analyses normally used by environmental engineers. Field experiments are coordinated to allow collection of environmental and hydraulic data concurrently.

CIV 1360 Environmental Design**4 Q.H.**

(Prereq. CIV 1320, CIV 1341)

The course consists of several individual design projects in environmental engineering affording the student an opportunity to develop a sound engineering approach to water and wastewater management at the municipal level. Projects are given careful critique. There is one group project requiring an oral presentation.

CIV 1370 Air Pollution**4 Q.H.**

(Prereq. Seniors only)

The course focuses on theory and practice related to engineering management of air resources; microclimate and dispersion of pollutants; atmospheric chemistry; air pollution instrumentation; control of gaseous and particulate emissions; design of air pollution control systems; biological and chemical aspects of air pollution with emphasis on the toxicological aspects of the environment; physiological effects of aerosols; analysis of organic and inorganic constituents of the atmosphere; and rationale for establishment of air quality criteria and standards.

CIV 1390 Survey of Environmental Problems**4 Q.H.**

(Prereq. Nonengineers only; permission of instructor) A survey of problems associated with man's use of the environment. Course material includes interrelation of the air-water-land complex, with emphasis on ecological stresses produced, and methodologies for assessing and controlling man's environmental impact.

CIV 1410 Soil Mechanics**4 Q.H.**

(Prereq. CIV 1211 and CIV 1310)

Course material includes soil classification, soil-water phase relations, ground water seepage, consolidation theory, strength properties of soils, stress distributions in soils due to surface loads, slope stability.

CIV 1411 Soil Mechanics Lab**2 Q.H.***

(Taken concurrently with CIV 1410)

The course focuses on laboratory exercises, including soil classification, seepage, shear strength, consolidation, and triaxial testing.

CIV 1420 Foundation Engineering**4 Q.H.**

(Prereq. CIV 1410)

Topics normally include subsurface explorations, determination of soil-bearing capacity, design of shallow foundations, pile and caisson foundations, design of retaining walls, anchored bulkheads and braced sheeting, and other selected topics on foundation design and construction.

CIV 1430 Geotechnology**4 Q.H.**

(Prereq. Juniors and seniors only)

An introduction to the geological sciences as they apply to civil engineering practice, the course focuses on the effects of significant geological features on location, design, construction, operation, and maintenance of engineering projects.

CIV 1510 Materials**4 Q.H.**

(Prereq. CHM 1132)

The course focuses on the structural, chemical, and mechanical properties of materials of importance to civil engineers; fundamental nature of matter; significance of phase transformations; control of microstructure; mechanisms of failure of materials.

CIV 1511 Materials Laboratory**2 Q.H.**

(Prereq. Taken concurrently with CIV 1510)

A laboratory in which standard tests and equipment are used to determine structural and mechanical properties of materials common to civil engineering practice: concrete, aggregates, steel, wood, asphalt, glass, etc.

CIV 1530 Transportation Analysis and Planning

(Prereq. Juniors and seniors only)

4 Q.H.

Course material covers history and policy issues in urban transportation; characteristics of different urban transportation models; fundamentals of bus and rail transit operations planning; fundamentals of urban highway operation; transportation systems manage-

*Lab fee required.

ment; and land use and demand modeling. Other topics that may be covered include environmental impact assessment, citizen participation, data collection, and transportation in developing countries.

CIV 1540 Highway Engineering 4 Q.H.
(Prereq. CIV 1620 and CIV 1410)

A general approach to highway engineering, topics normally include administration, economic factors, planning, environmental impacts, geometric design, drainage, and the design of flexible pavements.

CIV 1550 Construction Management 4 Q.H.
(Prereq. Seniors only)

An overall perspective of the construction industry and tasks that must be addressed by construction management, including resource allocation, construction environment, organization, contracts, funding, cash flow, productivity, labor relations, network planning and scheduling, construction accounting, and project control.

CIV 1610 Computer Applications in Civil Engineering 4 Q.H.
(Prereq. GE 1100)

Introduction to problem solving methods in civil engineering, especially those requiring a data processing machine. Examples of civil engineering problems are introduced and methods of solution discussed. Students are assigned several projects in implementing solution techniques on computers. Proficiency in computing, problem solving, documentation, and presentation is acquired by critiquing and classroom discussion.

CIV 1620 Engineering Measurements 4 Q.H.
(Prereq. MTH 1124 and PHY 1222)

The mathematics and instrumentation used in land surveying for obtaining measurements of distance, elevation, and direction, and the methodology applied for traverses, areas, coordinate systems, horizontal and vertical curves, earthwork, and topographic mapping.

CIV 1621 Engineering Measurements Laboratory 2 Q.H.*
(Prereq. GE 1100)

Taken simultaneously with CIV 1620, the course consists of field problems illustrating and applying the lecture material in CIV 1620, with computer applications.

CIV 1630 Civil Engineering Systems 4 Q.H.
(Prereq. MTH 1227)

The course covers application of system synthesis and optimization techniques for civil engineering students; calculus method, linear programming, network analysis, and dynamic programming.

CIV 1640 Applied Probability Theory for Civil Engineers 4 Q.H.
(Prereq. MTH 1227)

Topics normally include applications of probability theory to civil engineering problems, probabilities of events, random variables and distributions, derived distributions, expectation, common probability models, and an introduction to statistics.

CIV 1650 Legal Aspects of Civil Engineering 4 Q.H.
(Prereq. Seniors only)

Business law for the engineering organizations, including description and evaluation of various types of contracts for engineering services and construction, procedures for submitting bids, procedures for claims and legal steps to minimize risk exposure, both in U.S. and international business.

CIV 1810 Special Topic In Civil Engineering 4 Q.H.
(Prereq. Permission of instructor)

This is a special course within the field of civil engineering initiated by the appropriate discipline committee and approved by the department.

CIV 1820 Special Project in Civil Engineering 4 Q.H.
(Prereq. Outstanding academic performance)

The course offers individual study in an area within the field of civil engineering, selected by the student and his or her instructor with approval by the appropriate discipline committee, resulting in a definitive report and an oral presentation.

Electrical Engineering

The course descriptions listed under Electrical Engineering are intended to show the general scope of the subject that will be covered. Since courses are continually updated, specific topics or methods of approach may vary from term to term.

ECE 1101 E.E. Lab 1-A Circuits and Systems I Laboratory 1 Q.H.*
(Prereq. PHY 1223)

Design and confirmation testing of elementary circuits containing both LTI circuit elements and other components which are either nontime invariant or nonlinear. Measurement techniques are developed to meet specific design problems.

ECE 1102 E.E. Lab 1-B Electronics I Laboratory 1 Q.H.*
(Prereq. ECE 1101)

Design and confirmation testing of elementary digital circuits. Included are designs of gates themselves as well as the assembly of simple functional blocks such as decoders, registers, and flip-flops.

* Lab fee required.

ECE 1103 E.E. Laboratory I-Measurements

(Prereq. ECE 1211)

2 Q.H.*

The course covers basic electrical measurements; report writing, use of standard laboratory instruments, including digital voltmeters, oscilloscopes, and bridges.

ECE 1171 Electrical Engineering I**4 Q.H.**

(Prereq. MTH 1128; not open to electrical engineering majors)

Introductory course to electric circuit theory covers Kirchhoff's laws, loop and nodal analysis, Thevenin's theorem, power and energy, exponential excitation and the system function.

ECE 1172 Electrical Engineering II**4 Q.H.**

(Prereq. ECE 1171; not open to electrical engineering majors)

Properties and analysis of electronic devices, circuits, and systems; elements of control systems; principles of energy conversion. Emphasis on each topic determined according to major discipline.

ECE 1173 Power Systems and Controls**4 Q.H.**

(Prereq. ECE 1171)

Basic concepts of electromechanical energy conversion stressing the terminal characteristics and operation of d-c and a-c machines, elements of power distribution systems, and concepts of feedback control, with application to power systems and plant control.

ECE 1174 Basic Electrical Instrumentation

(Prereq. ECE 1171)

4 Q.H.*

Basic electrical measurement devices, including ammeters, voltmeters, oscilloscopes, and bridges; instrumentation techniques such as direct measurement, comparative measurement, and analog methods. Application to nonelectrical disciplines is included.

ECE 1175 Modelling Techniques**4 Q.H.**

(Prereq. ECE 1171 and ECE 1172; also FORTRAN IV programming)

Introduction to the concept of modelling techniques to represent physical, biological, and social systems; electrical analogs and use of analog computers; introduction to digital modelling and the use of digital computation.

ECE 1191 Introduction to Digital Computers I: Design and Organization**4 Q.H.**

(Prereq. PHY 1223 and MTH 1128)

Introduction to the basic components of digital systems and methods for their analysis and design: logic gates and flipflops, Boolean algebra, and combinational and sequential circuits. Integrated circuit logic families and functional building blocks: registers, counters, decoders, multiplexers, and memories. Data representation and coding techniques. Register-transfer language for specification of instruction sets, processor organization, and logic design. Case study of a specific central processor instruction set implementation. Assembly language programming techniques and introduction to system software.

ECE 1192 Introduction to Digital Computers II:**Fundamentals of Computation Structures****4 Q.H.**

(Prereq. ECE 1191)

Central processor alternatives: instruction formats, addressing modes, bus structures, arithmetic units, timing analysis, and stacks. Algorithms for arithmetic operations with various data representations. Input-output and memory organization. Introduction to microprocessors. This course, like its predecessor ECE 1191, is oriented toward the design, not just the comprehension, of digital systems likely to be encountered by the electrical engineer.

ECE 1211 Circuits and Systems I**4 Q.H.**

(Prereq. MTH 1128 and PHY 1223)

The course covers circuit elements (linear, non-linear, time-invariant, and time-varying), sources (independent and controlled), Kirchhoff's laws, Tellegen's theorem, Thevenin's theorem, network topology, mesh and nodal analysis.

ECE 1212 Circuits and Systems II**4 Q.H.**

(Prereq. ECE 1211)

Topics include linearity and time-invariance, system function, forced and force-free response of networks and LTI systems, singularity response, partial fraction expansion, "pre-box" concept, and convolution.

ECE 1213 Circuits and Systems III**4 Q.H.**

(Prereq. ECE 1212)

Topics include Thevenin's theorem revisited, magnitude and phase plots, resonance, two-port networks, energy and power and convolution.

ECE 1214 Circuits and Systems IV**4 Q.H.**

(Prereq. ECE 1213)

The course focuses on basic concepts and techniques of linear system theory. Review of system theory in terms of the convolution integral; waveform representation in terms of the Fourier series, Fourier Integral, and the bilateral Laplace transform; system concepts in terms of the function and their application to filters and feedback systems.

ECE 1215 Circuits and Systems 1**4 Q.H.**

(Prereq. MTH 1127, PHY 1223)

Topics include electric circuit elements, sources, Kirchhoff's laws, Tellegen's theorem, Thevenin's theorem, mesh and node equations, power and energy, linearity and time invariance, response to exponential excitations, system function.

ECE 1216 Circuits and Systems 2**4 Q.H.**

(Prereq. ECE 1215)

Topics include forced and force-free response of networks, singularity response, "pre-box" concept, classical a-c response, application of Laplace transform to circuit problems and determination of initial conditions, driving-point and transfer functions of circuits.

ECE 1217 Circuits and Systems 3**4 Q.H.**

(Prereq. MTH 1228, ECE 1216)

Power and energy, reciprocity, magnitude and phase

* Lab fee required.

plots, n-port network theory. Frequency domain analysis of circuits, stability considerations. The concept of state variables for networks, natural frequencies, and eigenvalues.

ECE 1218 Circuits and Systems 4 4 Q.H.

(Prereq. ECE 1217, ECE 1332)

Continuation of state variables for active and passive networks, noise considerations and linear filters. Nonlinear, and time-varying linear systems. Introduction to distributed systems.

ECE 1219 Circuits and Systems A 6 Q.H.

(Prereq. MTH 1128 and PHY 1223)

Includes the material covered in course ECE 1211, Circuits and Systems I, plus half of the material in course ECE 1212, Circuits and Systems II.

ECE 1220 Circuits and Systems B 6 Q.H.

(Prereq. ECE 1219)

Completes the material in ECE 1212, Circuits and Systems II, plus the material in course ECE 1213, Circuits and Systems III.

ECE 1301 E.E. Lab 2-A Circuits and Systems III Laboratory 1 Q.H.*

(Prereq. ECE 1102)

Design and testing of simple systems for the analysis and modification of analog signals. The emphasis is on discrete methodologies whose implementation is achieved as a computer program. Included are designs of filters with specific characteristics and the spectral analysis through DFT's and the like. This laboratory's central purpose is to develop the understanding of the relationship between a filter as represented by a transfer function and that same filter as represented by the system which implements the transfer function.

ECE 1302 E.E. Lab 2-B Electronics III Laboratory 1 Q.H.*

(Prereq. ECE 1301)

Design and confirmation testing of some of the basic building blocks of analog integrated circuits. Variations on the Widlar current mirrors will be designed and explored and then used in the design of differential amplifiers employing integrated matched transistor pairs. One of the objectives of this laboratory is to explore the design advantages that arise from the inherent component matching of integrated circuits.

ECE 1303 E.E. Laboratory II-Circuits and Systems 2 Q.H.*

(Prereq. ECE 1212)

The course includes experiments relevant to the Circuits and Systems courses, together with more work in measurements.

ECE 1304 E.E. Lab 3-A Electronics IV Laboratory 1 Q.H.*

Design and confirmation testing of amplifier circuits employing discrete elements and packaged op-amps. The emphasis is on the stabilization and the control of the performance characteristics of such amplifiers through feedback. The student will be expected to design circuits using manufacturer's specifications and to demonstrate finished designs which will work

if the active devices are anywhere within the manufacturer's tolerances.

ECE 1305 E.E. Lab 3-B EM Field Theory II Laboratory 1 Q.H.*

(Prereq. ECE 1304)

Design and confirmation testing of linear antennas and arrays for specific directivity. Transmission line impedance matching and resonator section designs. Applications of Faraday's and Ampere's laws through CAD design of inductors, RF and power transformers, or electromechanical actuators.

ECE 1306 E.E. Laboratory III-Devices 2 Q.H.*

The course includes introduction to the digital computer, electro-optics, terminal characteristics of active devices.

ECE 1307 Senior Design Laboratory 2 Q.H.*

(Prereq. ECE 1361)

In this laboratory, small teams of students carry through an engineering development product from proposal through paper and CAD to construction and testing. Economic factors, component tolerances, production design, and acceptance testing are intrinsic components of successful projects. Many teams will work on the same project and the designs will be judged competitively. A typical project might be an addressable A/D converter properly interfaced to a particular microcomputer.

ECE 1331 Discrete Systems 4 Q.H.

(Prereq. GE 1100)

Topics include historical review and future perspectives of discrete systems; representation of digital signals, quantization; introduction to digital filters, moving average filters; Z-transforms, inverse Z-transforms; recursive digital filters, stability considerations, steady-state and transient response; introduction to non-recursive techniques, the discrete Fourier transform, the fast Fourier transform; applications to computation of systems transfer functions.

ECE 1332 Discrete Systems 4 Q.H.

(Prereq. GE 1100, ECE 1216)

Topics include historical review and future perspectives of discrete systems; representation of digital signals, sampling, quantization, introduction to digital filters, moving average filters; Z-transforms, inverse Z-transforms; recursive digital filters, stability considerations, steady-state and transient response; introduction to nonrecursive techniques, the discrete Fourier transform, the fast Fourier transform; applications to computation of systems transfer functions.

ECE 1333 Continuous Systems 4 Q.H.

(Prereq. ECE 1217, ECE 1332)

The course focuses on basic concepts and techniques of continuous linear system theory. Topics include system theory in terms of the convolution integral; waveform representation in terms of the Fourier series, Fourier integral, and the bilateral

* Lab fee required.

Laplace transform; system concepts in terms of the system function and their application to filters and feedback systems.

ECE 1346 Electronics I **4 Q.H.**
(Prereq. ECE 1216)

This first course in electronics stresses the use of solid-state active devices in digital circuits.

The first part of this course introduces binary values, logic operations, flip-flops and registers from the viewpoint of symbolic logic gates, Boolean algebra and Karnaugh maps. The latter part of this course deals with solid-state devices for the realization of logic functions. Concepts of diodes are introduced followed by BJT and field-effect characteristics leading to the use of such devices in implementing Inverters, NAND and NOR gates for T^2L , CMOS and NMOS logic families.

ECE 1347 Electronics II **4 Q.H.**
(Prereq. ECE 1346, ECE 1216; Coreq. ECE 1332)

This second course in electronics stresses the use of transistors, with emphasis on integrated devices in the design of analog circuits. Topics covered include biasing, linearized incremental model characteristics such as gain and impedance levels, Early effect, use of signal flowgraphs and frequency response for single and compound stages followed by an introduction to operational amplifiers.

ECE 1349 Electronic Design I **4 Q.H.**
(Prereq. ECE 1347)

This third course in electronics continues the design of analog circuits with emphasis on operational amplifiers. Topics include concepts of feedback, open- and closed-loop gain, effect of feedback on impedance levels, frequency response, stability and compensation in feedback systems. ECL is introduced from the viewpoint of feedback, followed by an analog/digital design example.

ECE 1350 Electronic Design II **4 Q.H.**
(Prereq. ECE 1349, ECE 1333)

This fourth course in electronic design is a continuation of the third course. It stresses the design of systems involving analog, digital and analog/digital approaches to signal acquisition and processing.

ECE 1361 Electromagnetic Field Theory I **4 Q.H.**
(Prereq. MTH 1225)

The course focuses on definition and representation of scalar and vector fields. Coordinate systems; elements vector calculus; definition of the concepts of gradient, divergence, curl, and the "del" operator, free-space electrostatics; definition of the electric field intensity; the scalar potential; solution to Poisson and Laplace equations; macroscopic model of dielectric materials; the electric polarization and the electric flux density vector; boundary conditions; Lorentz force; free space magnetostatics; magnetic vector potential and solution to the "vector" Poisson equation; macroscopic model of magnetic materials; magnetization and magnetic field intensity; boundary conditions.

ECE 1362 Electromagnetic Field Theory II **4 Q.H.**
(Prereq. ECE 1361)

Topics include generalization of the Maxwell equations to the case of time-varying fields; Faraday induction law; wave equations and the plane wave solution; Poynting theorem and the concept of energy stored by the fields; reflection and refraction of plane waves; time-harmonic wave equations for the scalar and vector potentials; time-harmonic form of retarded potentials; radiation from dipole; motion of charged particles in fields; magnetoionic media; elementary discussion of plasma physics and M.H.D.

ECE 1363 Electromagnetic Field Theory I **4 Q.H.**
(Prereq. ECE 1218, PHY 1223)

Starting with Maxwell's equations, the major areas of statics, dynamics, quasistatics, and material media are studied as special cases. Statics covers the study of the electrostatic and magnetostatic fields, including the scalar electric potential and vector magnetic potential. In dynamics, Faraday's law and Ampere's law are presented for time-varying electromagnetic fields. Quasi-static introduces the concept of electromechanical coupling with applications to elementary energy conversion, both electric and magnetic devices. Material media covers the macroscopic model of dielectric materials, the electric polarization and the electric flux density vector; macroscopic model of magnetic materials, magnetization, and magnetic field intensity; and boundary conditions.

ECE 1364 Electromagnetic Field Theory II **4 Q.H.**
(Prereq. ECE 1363)

This course offers an introduction to the applications of electromagnetic field theory. From Maxwell's equations for time-varying fields, the following areas are developed: The concepts of waves and energy are explored, including plan wave propagation, waveguides and Poynting's theorem. Radiation is studied with emphasis on spherical waves and elementary scattering and application to antenna design. Distributed systems are treated in terms of waveguide circuit concepts, transmission lines and Smith chart techniques. Other applications in the optics and acoustics areas will be presented.

ECE 1371 Electrical Machines I **4 Q.H.**
(Prereq. ECE 1364, ECE 1333)

Review of electromagnetic field theory as applied to electromechanics; magnetic circuits, transformers and their circuit representations; principles of electromechanical energy conversion (state-variable formulation of electromechanical coupling, singly and multiply, excited magnetic-field systems, elementary concepts of rotating machines including transformer emf, speed emf, and torque production); steady-state theory and performance of basic rotating machines such as induction, synchronous, and d-c commutator machines through circuit-model concepts.

ECE 1372 Electrical Machines II 4 Q.H.

(Prereq. ECE 1371)

Dynamic behavior of electromechanical devices; transient performance of synchronous machines; synchronous and induction-machine dynamics; d-c machine dynamics.

ECE 1375 Electromechanical Dynamics 4 Q.H.

(Prereq. ECE 1363, ECE 1364)

The approximate form of Maxwell's equations for quasi-static electromagnetic fields is presented. The concept of the generalized inductance and capacitance is developed, followed by the definition of electric and magnetic field systems. Force and energy relations are introduced, followed by rotational and translational mechanical systems. The complete electromechanical system is presented in terms of a circuit model with a discussion of energy conversion. Applications include the electrodynamic loudspeaker, reluctance motors, a-c rotating machines with single or multiple excitation. The dynamic equations of motion are solved by linearization methods.

ECE 1376 Machines and Systems 4 Q.H.

(Prereq. ECE 1375)

The course offers a detailed investigation of the operating principles of synchronous machines, synchronous motor and generator power-angle characteristics, machine dynamics, machine and power system stability.

ECE 1377 Introduction to Electric Machinery

(Prereq. ECE 1361)

4 Q.H.

Topics include review of magnetic field, energy, and energy conversion concepts. Transformers and their circuit representations; application of energy conversion concepts to basic rotating machines and exploration of the Theory of Induction, synchronous, and d-c machines. Limitations in actual machines will be discussed.

ECE 1378 Transients in Electric Power Systems**4 Q.H.**

Introduction to the response of various elements of a power network to the transients caused by lightning, switching, and faults. Some of the equipment to be considered in terms of transient response include the transmission line, lightning arresters, fuses, transformers, and circuit breakers.

ECE 1379 Transients in Electric Power Systems

(Prereq. ECE 1333)

4 Q.H.

Introduction to transient response in electrical power systems. Topics include lightning; switching; faults; protection against transient overvoltages. Some of the equipment to be considered in terms of transient response include transmission lines, transformers, circuit breakers, surge arresters, and fuses.

ECE 1381 Computer Engineering I:**Digital Computer Architecture****4 Q.H.**

(Prereq. ECE 1346)

Introduction to the structure of programmable digital systems. Sequential circuits and functional building

blocks such as registers, counters, decoders, multiplexers, and memories. Data representation. Register transfer language specification of instruction sets and processor organization. Case study of a specific central processor instruction set implementation. Input-output and memory organization, bus structures and arithmetic units. Students complete a design project involving the assembly language programming of a microprocessor.

ECE 1382 Computer Engineering II:**Software Engineering****4 Q.H.**

(Prereq. ECE 1381, GE 1100 or equivalent)

Basic issues of systems software, from the point-of-view of structured software design, are considered. Topics covered include the modular design of assemblers, linkers, and macroprocessors. Basic techniques of software engineering are explored, including such concepts as error handling, program verification, unit testing, and documentation. A team project is assigned, with student groups of two or three implementing individual modules in a larger program. A student manager group is used as well. Projects are carried out on either large mainframes or laboratory microcomputer systems.

ECE 1383 Computer Engineering III:**Integrated Microcomputer-based Systems 4 Q.H.**

(Prereq. ECE 1382)

The course focuses upon understanding the operation of systems which contain a microcomputer as a key element. An important issue is the way in which the computer software is synchronized with the hardware components of the system to achieve coherent operation. A discussion of these interfacing techniques comprises the first half of the course. The rest of the course focuses on several specific applications. A typical example may be the design of a modern vehicle where the computer may control functions such as fuel regulation, optimization of engine speed, etc. A project is associated with the course that requires the student to design a device using the methodology discussed in class.

ECE 1384 Computer Engineering IV:**Computer-aided Design Methods in Electrical****Engineering****4 Q.H.**

(Prereq. ECE 1382, ECE 1364, ECE 1350, ECE 1218)

Use of packaged software and graphics facilities to implement realistic designs in electrical engineering. Applications include the design of antennae, wave guides, transmission lines, electric circuits, digital filters, and VLSI methods. Students are required to develop their own specialized software using available CAD tools.

ECE 1385 Computer Engineering V:**Introduction to Robotics****4 Q.H.**

(Prereq. ECE 1382, ECE 1383, ECE 1333)

Studies of intelligent interactions between machines and their environment with emphasis on sensory (vision)-driven locomotion and manipulation. Integration of sensors, manipulators and computers into

intelligent robotic systems. Vision, touch, force, position, proximity, and torque sensors and their role in adaptive control of robot movements. Computational needs of sensory data processing. VLSI implementation of data-driven architectures for low-level vision. Image processing and understanding as a means to developing symbolic models of the visual (sensory) world. Manipulator kinematics and dynamics. VLSI controllers for multicoordinate robotic systems. Robotic software tools, including high level language and decision-making functions. Real-time microprocessor networks and control hierarchies within the robot.

ECE 1386 Computer Engineering VI: Structure of Large-scale Computer Systems 4 Q.H.
(Prereq. ECE 1384)

Study of large-scale computer systems with applications to robotics, communications, artificial intelligence, and interactive computer design. The course consists of two major topics:

- 1) A global overview of distributed and parallel computing systems for problem solving, planning, massive data processing, etc., and
- 2) Examination of special purpose processors which constitute such complex systems including parallel hardware for image processing, industrial data acquisition and control systems, array processors, and knowledge-based systems.

ECE 1390 Senior Project Laboratory I 2 Q.H.*
(Prereq. ECE 1347 and ECE 1362)

In this course, students work with a faculty adviser on some term project, either experimental or theoretical.

ECE 1391 Senior Project Laboratory II 2 Q.H.*
(Prereq. ECE 1347 and ECE 1362)

This course may be a continuation of the project started in ECE 1390 or it may be a new project. Again, the student works closely with a faculty adviser.

ECE 1400 Special Topics 4 Q.H.
(Prereq. Permission of department)

Topics covered vary from term to term depending on the interests of the department and the students.

ECE 1401 Selected Topics In Electronics 4 Q.H.
(Prereq. ECE 1347)

This course concerns (1) the description and application of those electronic devices (thyristors, photo-diodes, etc.) not covered in depth in the regular electronics sequence; (2) electronic subsystems (AFC, shift registers, etc.); (3) systems (navigation systems, telephone switching systems, etc.). Most of the presentations are made by students on topics of their choice, but there are also lectures by invited speakers as well as by the instructor.

ECE 1404 Theory and Technology of Semiconductor Devices I 4 Q.H.*
(Prereq. ME 1386)

This course comprises a closely coupled lecture and laboratory series. Topics covered include technology

and physics of the planar diffusion process, electronic properties of homogeneous semiconductors, inhomogeneities and junctions (Fermi potential diagrams, equilibrium at an abrupt discontinuity, and the behavior of a junction under applied bias), and the junction transistor.

ECE 1405 Theory and Technology of Semiconductor Devices II 4 Q.H.*
(Prereq. ECE 1404)

This course is a continuation of ECE 1404. Material covered includes introduction to unipolar transistor action, introduction to surface effects, the MOS-FET, and a discussion of noise problems encountered in semiconductor devices.

ECE 1408 Physical Electronics 4 Q.H.
(Prereq. ECE 1350, ECE 1362, CHM 1132)

Elements of solid-state theory including wave mechanics, crystalline and amorphous solids, statistical mechanics, and electron transport theory are developed to provide a proper background for the central objective of the course which is a thorough understanding of the principal building block of semiconductor devices—the junction diode. Other important elements such as ohmic contacts and Schottky barriers are explored as well as the several ways that these may be generated in individual and integrated form. Finally, as time permits, these elements are joined together to form BJT's and JFET's.

ECE 1418 Control System Theory 4 Q.H.
(Prereq. ECE 1347)

Control system concepts; goals and basic components. Review of time- and frequency-domain techniques. Classical control system theory; error analysis for different systems. Analysis of second- and third-order systems. Stability and relative stability using root locus and Nyquist diagrams. The Nichols chart. Compensation, application of computer technology to control systems analysis and design. State-variable description of dynamic systems. The state equations and the fundamental analog realization of the standard equations. Properties of the state-transition matrix. Optimal systems. Introduction to sampled data systems. The Z-transform as an analog to the Laplace transform.

ECE 1420 Control Systems 4 Q.H.
(Prereq. ECE 1217, ECE 1350)

Some of the topics included: classical control system theory, error analysis, stability and relative stability using root locus and Nyquist diagrams, the Nichols chart, compensation, application of computer technology to control system analysis and design. Also included as time permits: state variable description of dynamic systems, properties of the state-transition matrix, optimal systems, introduction to sampled data systems and the Z-transform as an analog to the Laplace transform.

ECE 1430 E.E. Power Laboratory A 1 Q.H.*

* Lab fee required.

ECE 1431 E.E. Power Laboratory I 1 Q.H.*

(Prereq. ECE 1333; Coreq. ECE 1471)

Single-phase circuits; balanced and unbalanced polyphase circuits; power measurement in polyphase circuits; transformer tests and equivalent circuits.

ECE 1434 E.E. Power Laboratory II 2 Q.H.*

(Prereq. ECE 1431, ECE 1371; Coreq. ECE 1472)

Experimental work with rotating machines and systems; steady-state and dynamic models of synchronous induction, and d-c machines; power-system load-flow studies and fault analyses.

ECE 1451 Communication Theory 4 Q.H.

(Prereq. ECE 1214)

Topics include signal analysis, including signal classes, Fourier methods, correlation functions, amplitude density, and power spectra; amplitude modulation, Hilbert transform applications, analytic signal, and complex envelope.

ECE 1452 Fundamentals of Communication Systems(Prereq. ECE 1451) **4 Q.H.**

Topics include frequency modulation, signal-to-noise ratios in AM and FM, multiplexing, sampling theory, pulse modulation systems, data transmission, signal space. Correlation detection, probability, random variables and random processes, information theory and coding.

ECE 1454 Communication Systems 4 Q.H.

(Prereq. ECE 1333, ECE 1217)

Signal representations and characterization; characterization of thermal noise in electronic circuits; amplitude modulation and demodulation; frequency and phase modulation and demodulation; pulse modulation; transmission of digital information.

ECE 1461 Wave Transmission and Reception(Prereq. GE 1100 and ECE 1361) **4 Q.H.**

Topics include analysis of radiation, transmission, and reception of electromagnetic and acoustic waves using graphical and digital computer techniques. Design of distributed systems, antennas, microphones, loudspeakers, and sonar transducers.

ECE 1462 Advanced Topics In Electromagnetic Field Theory 4 Q.H.

(Prereq. ECE 1362)

This course is a continuation of the required courses in field theory. Topics covered include microwave and waveguide structures, careful development of electromagnetic energy and force concepts, and an introduction to radiation and antenna theory.

ECE 1465 Wave Transmission and Reception(Prereq. ECE 1363, ECE 1364) **4 Q.H.**

This course discusses the transmission, radiation, and reception of electromagnetic waves at and above radio frequencies. Transmission-line theory is developed using Maxwell's equations and the circuit theory approximations are presented. Matched lines, tuning stubs, and loaded transmission lines are discussed,

together with the theory and applications of the Smith chart. The theory of guided waves in structures of rectangular and circular cross-section is presented, followed by the theory of the cavity resonator. The linear antenna is discussed and the radiation fields, directivity, and gain are defined. Other topics include the aperture antenna and the insulated antenna.

ECE 1471 Electrical Power Systems I 4 Q.H.

(Prereq. ECE 1333)

Basic introduction to electrical power systems, wherein three-phase circuits are analyzed under balanced steady-state operation. Topics include system elements, their characteristics and interaction; system modeling and network calculations.

ECE 1472 Electrical Power Systems II 4 Q.H.

(Prereq. ECE 1471)

A continuation of basic studies in electrical power systems. Topics include power system load-flow analysis; symmetrical components and fault calculations; system protection; economic operation of power systems; introduction to power system stability.

ECE 1481 Machine Language and Assembly Language Programming 4 Q.H.

(Prereq. ECE 1191)

This course focuses on study of the machine and assembly languages of a selected digital computer. Machine representation of numbers, characters, and instructions. Machine language programming; flow of control, relocatability, input/output instructions, addressing, and instruction modification. Symbolic assembly language; macros, literals, and pseudo-instructions. Several programming projects are an integral part of the course.

ECE 1482 Programming Systems 4 Q.H.

(Prereq. ECE 1481)

Continuation of ECE 1481. Assemblers, searching and sorting techniques, macro-processors loaders. High-level languages and an introduction to their compilation. Introduction to operating systems. Programming projects are an integral part of the course.

ECE 1484 Applied Discrete Analysis 4 Q.H.

(Prereq. MTH 1225)

The course offers an introduction to elementary number theory, modern algebra, combinatorial mathematics and discrete probability theory, including such topics as prime numbers, least common multiple, greatest common divisor, Euclid's algorithm, continued fractions, congruences, groups, rings, fields, Boolean algebra, combinations and permutations, generating functions, random variables, and Markov chains. The material in this course is widely applicable to the field of computer science.

ECE 1485 Microcomputer-Based Design 4 Q.H.

(Prereq. ECE 1192)

Course material includes characteristics of microprocessor applications; external and internal architecture of a specific microprocessor family; logic

* Lab fee required.

design of a simple microcomputer. Instruction set, timing cycles, I/O port selection and interrupt-handling; software design for keyboard monitor, breakpoint facility and multiplexed displays. Application design studies of real-time interfaces to electromechanical devices. Evolutionary trends in LSI microprocessors and memory systems. Integrated hardware and software design projects using laboratory microcomputers are an integral part of this course, which is designed primarily for electrical engineers.

ECE 1486 Numerical Methods and Computer Applications **4 Q.H.**

(Prereq. GE 1100 and ECE 1214)

The course focuses on presentation of numerical techniques used in solving scientific and engineering problems with the aid of digital computers. Topics

covered include modeling and simulating of deterministic and probabilistic systems, theory of interpolation, iteration methods, numerical solution of ordinary and partial differential equations, signal detection, and use libraries of scientific subroutines. Representative problems are chosen for solution on a digital computer.

ECE 1487 Digital Techniques **4 Q.H.**

(Prereq. ECE 1346 and ECE 1191)

This course attempts to supplement the topics covered in the electronics sequences and the introduction to digital computer courses. Topics may vary from year to year and may include details of semiconductor integrated gate circuits, flip flops, clocks, counters, memory units, A/D and D/A conversions, coding, and the fundamental techniques of digital data transmissions.

General Engineering

The course descriptions listed under General Engineering are intended to show the scope of the subject that will be covered. Since courses are continually updated, specific topics or methods of approach may vary from term to term.

GE 1100 Computer for Engineers **4 Q.H.***

Introduction to use of computers in the solution of engineering problems; FORTRAN programming language. A survey of the organization and function of an elementary digital computer; the use of flowcharts in developing program logic; establishing and manipulating tables, arrays, and matrices in memory, using subprograms and subroutine packages, and graphical output on an X-Y plotter, to meet specific design problems.

GE 1110 Engineering Graphics and Design **4 Q.H.***

Manual and computer methods for depiction of three-dimensional objects. The orthographic projection system using principal and auxiliary views is presented, as is reading and analysis of drawings, fundamentals of manufacturing processes, and dimensioning practice. There is an emphasis on engineering design of components and systems, and computer graphics using software packages. Students are required to write programs as an introduction to computer-aided design and manufacturing, and preliminary to design engineering.

Industrial Engineering

The course descriptions listed under Industrial Engineering are intended to show the general scope of the subject that will be covered. Since courses are continually updated, specific topics or methods of approach may vary from term to term.

IIS 1200 Work Design **4 Q.H.**

Topics include the engineering design process, principles of work physiology, workplace design from the standpoint of employee safety and effectiveness. Also covered are work measurement techniques, which include direct measurement, synthetic standards, and work sampling. A project in which principles of work design must be applied is an integral part of the course.

IIS 1300 Probabilistic Analysis for Engineers **4 Q.H.**

(Prereq. Integral & Differential Calculus) Probability theory presented axiomatically, with emphasis on sample space representation of continuous and discrete random variables. Material will cover

standard distributions. Topics include expectation, transform techniques, and change of variable.

IIS 1310 Statistics I **4 Q.H.**

(Prereq. IIS 1300) The course examines the definition of a statistic; distributions of random variables, including normal, T, chi-square, F, Poisson, binomial; estimation of parameters, point estimation by method of moments, maximum likelihood, Bayes estimates, interval estimation, and hypothesis testing.

IIS 1320 Statistics II **4 Q.H.**

(Prereq. IIS 1310) Topics include linear regression, analysis of variance,

* Lab fee required.

reliability and decision theory from Bayes rule. Appropriate computer software is utilized to investigate example problems.

IIS 1330 Principles of Computation and Programming I **4 Q.H.**
(Prereq. FORTRAN)

The course covers review of algorithms, computers, and programming. Machine language programming (instruction, execution, and addressing techniques). Coding and representation of data. Program debugging and verification. Survey of machines, devices, and languages.

IIS 1340 Operations Research I **4 Q.H.**
(Prereq. MTH 1227)

Topics include deterministic models, including LP and duality; transportation and allocation; sensitivity and post-optimality analyses. Network analysis, including maximal flow, shortest route, and PERT.

IIS 1341 Operations Research II **4 Q.H.**
(Prereq. IIS 1310)

The course focuses on the stochastic models in OR; their analytical development and solution. Topics covered include queuing models, deterministic and stochastic inventory models, Markov chains, and sequencing. Dynamic programming and recursive functional expressions are also presented.

IIS 1345 Management Information Systems **4 Q.H.**

This course covers design and implementation of computer-based information systems. Topics include: the value of information, tools of system analysis and design, impact of computer-based information systems on organizations and society, rudimentary computer architecture, input devices, data organization and storage, system configuration, communications, and output/display devices.

IIS 1346 Basic Engineering Statistics **4 Q.H.**
(Not open to industrial engineering majors)

The course covers introduction to basic probability distributions, including the binomial and hypergeometric, exponential, Poisson, and normal; laboratory data analysis.

IIS 1350 Digital Simulation Techniques **4 Q.H.**
(Prereq. FORTRAN and IIS 1310)

The course covers model development, validation and experimentation for discrete event simulation models. Specific topics include problem formulation, data collection and analysis, random variable generation and statistical analysis of output. Experience with a major simulation language such as GPSS, SIMAN, or SIMSCRIPT is also acquired.

IIS 1356 Engineering Economy **4 Q.H.**
(Prereq. B.E.T. majors only)

Topics include the formulation of analytical techniques, i.e., rate of return, present worth, and annual cost. The application of these techniques to solve business and engineering problems involving design,

selection replacement, lease-buy decisions, and decisions between multiple alternatives. Sensitivity analysis and basic probability are introduced in cases where uncertainty exists. Brief survey of sources and costs of capital, debt-versus-equity financing, and leverage.

IIS 1360 Engineering Economy and Statistical Decisions Theory **4 Q.H.**
(Prereq. IIS 1300)

The objective of the course is to familiarize the student with the theory and techniques of economic evaluation of an investment project. Introductory steps in the analysis of investment proposals, time value of money, and cash flows; analysis of deterministic and stochastic cash flows in terms of present worth, annual cost, rate of return, and benefit/cost ratio. Decision tree for sequential decisions, criteria for decision making under uncertainty, utility theory, value of information, effect of accounting procedures and taxes on investment analysis.

IIS 1366 Engineering Economy **4 Q.H.**
(Not open to Industrial Engineering majors)

Topics include the formulation of analytical techniques, i.e., rate of return, present worth, and annual cost. The application of these techniques to solve business and engineering problems involving design, selection, replacement, lease-buy decisions, and decisions between multiple alternatives. Sensitivity analysis and basic probability are introduced in cases where uncertainty exists. Brief survey of sources and costs of capital, debt-versus-equity financing, and leverage.

IIS 1370 Industrial Cost Control **4 Q.H.**

Topics include fundamental concepts of accounting, with emphasis on using financial records to make engineering decisions. Study of financial statements of a firm. Contrast in usefulness of data from absorption costing vs. direct costing. Interpretation of variance accounts.

IIS 1400 Systems I **4 Q.H.**
(Prereq. MTH 1225)

Modeling, analysis, and control of linear feedback systems are examined through consideration of the following topics: differential equations as system models; transfer functions and block diagrams; system components and the method of analogies; accuracy and stability. Students will use appropriate computer software for applications.

IIS 1401 Design Project **4 Q.H.**
(Prereq. IIS 1300, IIS 1350, and IIS 1340)

The course examines analysis and design of major industrial engineering systems. Students are expected to undertake up to five projects drawn from line balancing, job shop scheduling, stochastic network analysis, reliability in design, complex queuing system design, sequencing, or other areas of student and faculty interest.

IIS 1405 Production and Inventory Control 4 Q.H.
(Prereq. IIS 1300)

Topics include basic inventory models and inventory management systems. Single-stage and multi-stage systems and their dynamics. Production control and aggregate planning. Mathematical and heuristic approaches to aggregate scheduling. Cost structure and decision-oriented analyses. Consideration of job shop scheduling and dispatching problems.

IIS 1415 Facilities Design 4 Q.H.
(Prereq. IIS 1340)

The course examines use of descriptive and optimizing models (e.g., simulation, queuing theory, and linear programming) to design facilities and associated materials-handling systems. Computer-assisted layout analysis techniques are applied to problems of real-world scope.

IIS 1425 Material Handling System Design 4 Q.H.
(Prereq. IIS 1340)

The course covers design and analysis of large material-handling systems. Topics include computer control of handling systems, integration with production and inspection, automated storage/retrieval systems, automatic identification systems, and systems acquisitions.

IIS 1435 Reliability and Quality Control 4 Q.H.
(Prereq. IIS 1310)

Applied probability and statistical inference techniques are utilized in reliability analysis and quality control. Both theory and application are discussed in relation to the total quality assurance program.

IIS 1455 Microcomputer Programming 4 Q.H.
(Prereq. GE 1100 or FORTRAN programming language)

A first course in microprocessor computing covers hex codes for assembly language. Basics of architecture model, programming model, and addressing modes. Instruction set for a typical machine. Programming techniques and details for a 6502 processor. Hands-on laboratory experimentation with typical interfacing problems. Case studies in the area of developing applications. Laboratory experimentation in staffed facility.

IIS 1465 Microprocessor Applications 4 Q.H.
(Prereq. IIS 1455, assembly language or permission of instructor)

System architecture of several microcomputers, including microprocessors, bus design, multichip

operation, and current trends in processors (8-, 16-, and 32-bit). Interfacing problems and hardware include: sensors, actuators, D/A and A/D converters, data transmission, and parallel/serial I/O. Real-time programming with case studies; network and distributed processing. Also included are development techniques and current state-of-the-art trends.

IIS 1470 Human Considerations in Engineering Design 4 Q.H.

An introductory human factors course with emphasis on the physiological and anthropometric bases of equipment and workplace design. Topics include: (1) an overview of the field of human factors; (2) work, fatigue, and endurance; (3) thermal regulation and heat stress; (4) biomechanics; (5) effects of aging on work capacity; and (6) body response to vibration.

IIS 1475 Human Factors 4 Q.H.

An introductory course with emphasis on human sensory/motor performance, information-processing capabilities, learning and skilled-task performance. Topics include: (1) an introduction to the experiment as a source of knowledge of human performance characteristics; (2) vision, visual performance, principles of display design; (3) audition, noise, and hearing damage, auditory signals; (4) information processing; (5) signal detection; (6) aging effects; and (7) system development.

IIS 1480 People in Organizations 4 Q.H.
(Prereq. Seniors only)

An overview course, using case studies and focusing on the influence of human behavioral factors on organizational performance. Students are provided with research evidence to aid in understanding and anticipating the response of organizational members to management practices. Topics include: (1) current theories of organization; (2) motivation; (3) group dynamics and the face-to-face work group; (4) leadership; (5) cognitive aspects of decision making; (6) work enrichment and job satisfaction; (7) job evaluation.

IIS 1800 Independent Study in Industrial Engineering 4 Q.H.

Independent study on advanced I.E. topics for students usually in the senior year and with high scholastic standing. Projects may be of an applied or theoretical nature; formal report submitted to student's project supervisor at the end of quarter.

Mechanical Engineering

The course descriptions listed under Mechanical Engineering are intended to show the general scope of the subject that will be covered. Since courses are continually updated, specific topics or methods of approach may vary from term to term.

ME 1311 Statics **4 Q.H.**

(Prereq. PHY 1222)

Topics include the concept of vector representation of force and moment; equivalent force systems; centroids and centers of gravity, distributed forces; equations of equilibrium; free-body diagrams; applications to trusses, pin-connected frames and beams; and elementary concepts in friction.

ME 1312 Dynamics I **4 Q.H.**

(Prereq. ME 1311)

Development of problem-solving ability in the fundamentals of dynamics. Topics include kinematics of particles, kinematics of rigid bodies (nonrotating frames), mass moments of inertia, kinetics of particles and rigid bodies (plane motion only) using force, mass, and acceleration.

ME 1313 Strength of Materials I **4 Q.H.**

(Prereq. ME 1311)

Topics include concept of stress and strain; principal stresses; Mohr's circle, stress-strain diagrams; moment of inertia of areas; stress and deformation of simple members under axial and torsional loads, and stresses in symmetrical beam bending.

ME 1314 Strength of Materials II **4 Q.H.**

(Prereq. ME 1313)

Topics include asymmetrical bending; analysis of determinate and indeterminate beams by various methods; and buckling of columns.

ME 1315 Dynamics II **4 Q.H.**

(Prereq. ME 1312)

Continued development of problem-solving ability in dynamics. Topics include kinematics of rigid bodies using rotating frames, kinetics of particles and rigid bodies using work and energy, introduction of Lagrange's equations, kinetics of particles and rigid bodies using impulse and momentum, and simple gyroscopic motion.

ME 1320 Dynamics for Civil Engineers **4 Q.H.**

(Prereq. CIV 1210)

Topics include kinematics, translating reference frames, mass moments of inertia, plane motion of rigid bodies, and instantaneous equations of motion.

ME 1321 Mechanics for Electrical Engineers

(Prereq. PHY 1222)

4 Q.H.

The course focuses on the study of kinematics and kinetics of rigid bodies, instantaneous equations of motion, work and energy, and impulse and momentum.

ME 1330 Mechanical Design

(Prereq. ME 1314)

4 Q.H.

The course focuses on engineering design of dynamically loaded machine elements. Topics include stress, strength and deformation analysis of machine elements; fracture and fatigue factors in design; and

design of basic machine parts (shafts, power screws, springs, bolted and welded joints).

ME 1331 Design Project

(Prereq. ME 1330)

4 Q.H.

The design project is the application of the engineering sciences to the design of a system component or process. Students will choose the particular design project with the approval of appropriate faculty. Design teams will be organized. Each project will include open-ended problems, development and use of design methodology, formulation of design problem statements and specifications, consideration of alternative solutions, feasibility considerations, and detailed system descriptions. It should include realistic constraints (such as economic factors, safety, reliability, maintenance, aesthetics, ethics, and social impact).

ME 1332 Thermal Design

(Prereq. ME 1345)

4 Q.H.

The purpose of the course is to develop the ability of the students to synthesize their understanding and knowledge of the basic concepts of thermodynamics, fluid mechanics, and heat transfer to meet the specifications of a design objective, which can be the thermal design of a system, component, and/or process. The course may include topics such as basic considerations in design, review of fundamentals of heat transfer and fluid mechanics, numerical methods in heat transfer, heat transfer analysis of heat exchangers, heat exchanger pressure drop analysis, analysis of hydraulic systems, modeling, systems simulation, and topics in optimization. One or more design problems will be assigned.

ME 1340 Thermodynamics I

(Prereq. MTH 1223)

4 Q.H.

Thermodynamics is the study of systems in which energy and its flow across systems boundaries are important. In this first course energy, heat, and work are defined and used in the First Law of Thermodynamics. Other thermodynamic properties and equations of state are introduced, with emphasis on tabular and graphical forms for simple compressible systems and on the ideal gas. Phases and phase transitions are briefly discussed, and energy analysis of both open and closed systems is examined. The Second Law of Thermodynamics and the property entropy are introduced, and their macro- and microscopic implications discussed. Emphasis, however, is placed on the macroscopic consequences of irreversibility and the limitation this places, through the Second Law, on the behavior of engineering systems. This course concentrates on basic concepts and their proper application to representative engineering systems.

ME 1341 Thermodynamics II**4 Q.H.**

(Prereq. ME 1340)

Course includes study of vapor power systems including the Rankine cycle and its modifications for use with both fossil and nuclear fuels, vapor refrigeration systems, and all-gas cycles including: a) the Brayton cycle and its modifications; b) the Otto cycle; c) the Diesel cycle; and d) supercharging and turbocharging. The course introduces concepts of availability and irreversibility and thermodynamics of nonreacting mixtures, with its application to air-water-vapor mixtures for air conditioning systems and cooling towers.

ME 1345 Heat Transfer I**4 Q.H.**

(Prereq. ME 1340, ME 1370, and MTH 1226)

The theories that describe conduction, convection, and thermal radiation heat transfer mechanisms are studied. Steady-state and transient conduction problems are discussed in rectangular, cylindrical, and spherical coordinate systems. Convective heat transfer mechanisms are studied, and the concept of the Nusselt-Reynolds Number correlation is introduced. Description of thermal radiation heat transfer between surfaces is discussed.

ME 1370 Fluid Mechanics I**4 Q.H.**

(Prereq. ME 1340, ME 1313, and MTH 1225)

The course offers an introduction to the concepts of fluid mechanics: fluid statics, including pressure distribution and forces on submerged surfaces; differential and integral formulations of conservation of mass, momentum, and energy with emphasis on control-volume applications; pipe flow with consideration of head loss, use of the Moody diagram and analysis of pipe networks.

ME 1380 Materials Science**5 Q.H.**

(Prereq. ME 1340 and CHM 1132)

An introduction to materials science for engineers, emphasizing the structure-property-function relation. Topics include crystallography, structure of solids, imperfections in crystals, phase equilibrium, phase transformations, diffusion, and physical properties. A laboratory is included in this course.

ME 1386 Materials Science**4 Q.H.**

(Prereq. ME 1340 and CHM 1132)

An introduction to materials science for engineers, emphasizing the structure-property-function relation. Topics include crystallography, structure of solids, imperfections in crystals, phase equilibrium, diffusion, and behavior of metals and semiconductors.

ME 1390 Measurements and Analysis**4 Q.H.***

(Prereq. ME 1340 and ME 1312)

Lecture subjects include design of experiments, instrumentation, measurements, data analysis, and report writing. Students apply the principles developed in class to a variety of laboratory experiments. Written reports are required.

ME 1395 Research Report**4 Q.H.**

(Prereq. Jr. Standing)

Students prepare a brief research paper on a technical subject of importance in mechanical engineering. All students must, before the end of the second week of the quarter of their enrollment, obtain written acceptance from a department faculty member for their research subject. Each student's work must show an ability to recognize the component parts of a subject and to organize them in a clear, logical, written presentation that demonstrates a command of grammar and style.

ME 1401 Advanced Strength and Applied Elasticity**4 Q.H.**

(Prereq. ME 1314)

Topics include analysis of curved beams, rings, and thick-walled pressure vessels; introduction to plane elasticity problems using rectangular and polar coordinate systems; and concepts of stress and strength.

ME 1402 Engineering Analysis**4 Q.H.**

(Prereq. ME 1314)

The course focuses on the numerical and experimental methods in stress analysis. Analytical techniques include an introduction to the finite element method. Experimental methods include, among others, strain gauge techniques and photoelasticity.

ME 1405 Mechanical Vibrations**4 Q.H.**

(Prereq. ME 1312)

The course focuses on the study of one-, two-, and multi-degrees of freedom systems using classical, energy, Laplace, mobility, matrix, and computer techniques. A laboratory is included in this course.

ME 1408 System Analysis and Control**4 Q.H.**

(Prereq. ME 1312)

This course provides students an opportunity to gain the theoretical background necessary to analyze and design simple linear control systems. System modeling, linear approximations and their limitations, transfer functions, and block diagrams; transient and frequency response; stability. Frequency domain, and root locus techniques are discussed.

ME 1410 Design for Space Applications**4 Q.H.**

(Prereq. ME 1312)

The course includes the study of Keplerian motion and transfer dynamics using Battin's solution. Optimization of transfer dynamics with respect to our solar system, and mass optimization, boost, and reentry dynamics are studied. Integrated design is used throughout the course.

ME 1430 Aspects of Forensic Design**4 Q.H.**

This course utilizes case studies in which students assume various investigative and court room roles, including (for both plaintiff and defendant) expert witnesses, lawyers, field and office engineers, and jury discussion. Students examine consumer protection accidents, the effect of changing standards

* Lab fee required.

and codes, classes of mechanical systems normally involved in consumer cases, the methodology of technical questioning, and writing and presenting expert reports.

ME 1435 Computer Aided Design 4 Q.H.
(Prereq. GE 1100 and ME 1314)

The concepts of computational and numerical geometry for design are introduced. The implementation of computer graphics in design and use of computer-aided design packages are included. Principles of numerical control techniques to design and manufacture are covered. A design project is required.

ME 1439 Engineering Design 4 Q.H.
(Prereq. ME 1314)

This course is intended for students who take only one course in design. Design projects vary from year to year, but in general expand and correlate previous courses in design of mechanical systems.

ME 1440 Introduction to Combustion 4 Q.H.
(Prereq. ME 1341 and CHM 1132)

An introduction to the science and technology of combustion. The fundamental principles of thermochemistry, chemical equilibrium, and rates of reaction are reviewed and related to combustion processes in heat engines. The principles of combustion waves are introduced, and the mechanisms of various physical and chemical processes in combustion are discussed.

ME 1441 Direct Energy Conversion 4 Q.H.
(Prereq. ME 1341 and CHM 1132)

This course is concerned with means for converting heat directly into electrical energy. The operating principles of such devices, principally magnetohydrodynamic power generators and fuel cells, are discussed. Other topics, such as energy storage, thermionic converters, and irreversible thermodynamics as a basis for a unified theory of energy conversion may be included.

ME 1470 Fluid Mechanics II 4 Q.H.
(Prereq. ME 1370)

Topics include velocity potential and stream functions; circulation and Kelvin's theorem; two-dimensional, steady irrotational incompressible flow; Karman-Pohlhausen method applied to two-dimensional boundary layers.

ME 1471 Fluid Machinery 4 Q.H.
(Prereq. ME 1370)

The course focuses on the general principles of turbomachinery: definitions of efficiency and a discussion of the requirements for similitude; machine selection to suit particular applications. Both liquid- and gas-handling machines are examined, and performance limits imposed by cavitation and choking are considered.

ME 1473 Gas Dynamics 4 Q.H.
(Prereq. ME 1370)

Course focuses on application of the principles of fluid mechanics to compressible flows. Wave propagation and the concepts of sound speed and Mach

number are discussed. The emphasis is on one-dimensional steady flows with an examination of the effects of area change, friction, and heat transfer, including a consideration of normal shock waves and the possibility of choking.

ME 1480 Mechanical Behavior of Materials 4 Q.H.
(Prereq. ME 1380 and ME 1313)

The study of the physical basis for the mechanical behavior of solid materials, including elasticity, plasticity, viscoelasticity, and fracture. Application is made to structural alloys and polymers.

ME 1483 Materials Processing 4 Q.H.
(Prereq. ME 1380)

The course offers a survey of the essential features and materials limitation of various methods for processing materials. Topics include heat treatment (ferrous and nonferrous alloys), casting, forming, joining, and machining.

ME 1490 Special Topics 4 Q.H.
(Permission of the department)

When offered, topics will vary depending on the previously expressed interests of a group of students and/or of the department.

ME 1495 Design and Analysis 4 Q.H.
(Prereq. ME 1331; cannot be taken simultaneously with ME 1496 or ME 1497)

A design project. Each student must, before the end of the second week of the quarter of his/her enrollment, obtain written approval for a proposed project from a department faculty member under whom the student will work. It is suggested that approval be secured before registration. A formal report must be submitted to the faculty supervisor at the end of the quarter.

ME 1496 Mechanical Engineering Project I 4 Q.H.
(Prereq. ME 1390; cannot be taken simultaneously with ME 1495 or ME 1497)

A project of an analytical or experimental nature. Each student must, before the end of the second week of the quarter of his/her enrollment, obtain written approval for a proposed project from a department faculty member under whom the student will work. It is suggested that approval be secured before registration. A formal report must be submitted to the faculty supervisor at the end of the quarter.

ME 1497 Mechanical Engineering Project II 4 Q.H.
(Prereq. ME 1496; cannot be taken simultaneously with ME 1495 or ME 1496)

If a project initiated under course ME 1496 is large enough in scope, a second project course may be taken with the approval of the faculty supervisor. A formal report must be submitted to the student's faculty supervisor at the end of the quarter.

ME 1540 Thermodynamics of Propulsion 4 Q.H.
(Prereq. ME 1341 and CHM 1132)

The course focuses on application of the principles of thermodynamics and fluid mechanics to understanding the behavior of propulsion devices. Emphasis is on air-breathing engines such as the aircraft

gas turbine and the ramjet. Various engine components, such as inlets, diffusers, compressors, combustors, turbines, and nozzles are discussed.

ME 1541 Nuclear Engineering I

4 Q.H.

(Prereq. ME 1341)

The course offers a study of nuclear physics emphasizing atomic and nuclear structure, radioactive decay and nuclear reactions, with particular attention to fusion and fission. The course also examines health physics, nuclear instrumentation, and the production and uses of radioactive isotopes. A general comparison of thermal, fast, and breeder reactor types is made prior to a discussion of neutron interactions and their slowing down. The four-factor formula and diffusion equation are developed and applied to one-group theory for bare and reflected thermal reactors. Flux shaping as well as energy production and distribution within the core are discussed.

ME 1542 Nuclear Engineering II

4 Q.H.

(Prereq. ME 1541)

The course focuses on development of two-group theory for thermal reactors and consideration of the physics and safety of fast reactors. Effect of reactivity change, either intentional or accidental, as well as changes due to temperature, fission product build-up,

xenon build-up after shutdown, and fuel depletion are discussed. Reactor design considerations involving the interrelation of reactor physics, reactor engineering control, distribution of power, and fuel cycle management are considered.

ME 1545 Internal Combustion Engines

4 Q.H.

(Prereq. ME 1341)

The concepts and theory of operation of internal combustion engines are presented based upon the fundamental engineering sciences of thermodynamics, gas dynamics, heat transfer, and mechanics. The design and operating characteristics of conventional spark-ignition, compression-ignition, Wankel, and stratified charge spark-ignition engines are discussed. Performance analysis using Newhall-Starkman charts and computer programs are included.

ME 1580 Engineering Materials

4 Q.H.

(Prereq. ME 1380)

This course is concerned with the utilization of materials science in the application and selection of materials. Topics include reactions with environment, i.e., oxidation and corrosion, materials selection criteria, and materials engineering case studies dealing with materials selection and failure analysis.

Computer Science

COM 1100 Fundamentals of Computer Science

4 Q.H.

Introduction to computers and computer programming using the language PASCAL. Brief overview of text editing and system commands. Basic concepts of PASCAL: built-in data types, variables, assignment, expressions, and input/output. Tools for structured programming: flow control constructs, procedures and functions, user-defined data types using arrays, records, and strings. Techniques for input/output to terminals. Assignments will emphasize how to design programs systematically through the use of structured sub-units.

COM 1101 Algorithms and Data Structures I

4 Q.H.

(Prereq. COM 1100)

A continuation of the study of the programming language PASCAL and its applications. Recursion and stacks. Sorting techniques. Pointer data types. Singly and doubly linked lists. Introduction to trees. Sequential files.

COM 1102 Functional Programming and Applications

4 Q.H.

(Prereq. COM 1101)

This course introduces the fundamental concepts and applications of functional programming and their relationship to computer science. Basic ideas underlying symbolic information processing and the role of LISP in this context. Applications selected from: artificial intelligence, programming language design and

implementation, procedural and data abstraction, development of data-driven programs.

COM 1110 FORTAN Lab

1 Q.H.

(Prereq. COM 1100)

The course offers an introduction to the elements of FORTRAN programming, including I/O, subprogram linkage, and methods of structured programming in FORTRAN.

COM 1111 DCL Lab

1 Q.H.

(Prereq. COM 1100)

Course includes elements of command language; procedure files and parameter exchange; device handling for both tapes and disks; detailed coverage of the command language for the computer at the Academic Computer Center.

COM 1113 COBOL Lab

1 Q.H.

(Prereq. COM 1100)

An introduction to COBOL programming language for students who have already mastered another high level algorithmic language (such as PASCAL or FORTRAN). Topics include COBOL program structure, arithmetic and flow control, subroutines and procedures, report writing, searching, sorting.

COM 1114 C Lab

1 Q.H.

(Prereq. COM 1101)

The course covers elements of the C programming language as well as an introduction to the UNIX operating system.

COM 1130 Computer Organization and Programming I 4 Q.H.

(Prereq. COM 1101)

An introduction to computer organization and programming at the assembly language level. Topics include arithmetic instructions, memory organization and data representation, addressing modes, flow control instructions, subroutines, procedures and linkage with higher level languages, run-time stack structure, implementation of recursion, floating point and bit instructions, terminal I/O using system services or higher level languages, use of the debugger.

COM 1131 Computer Organization and Programming II 4 Q.H.

(Prereq. COM 1130)

Continuation of COM 1130. User-defined macros, system macros; character string instructions and parsing; decimal instructions, conversion, and editing; queue instructions; exception handlers; record management and file operations; low level queue I/O services; introduction to other system services.

COM 1201 Algorithms and Data Structures II 4 Q.H.

(Prereq. COM 1101 and MTH 1409)

Introduction to complex data structures and corresponding algorithms for their manipulation. Lists, trees, sets, graphs and queues. Advanced sorting techniques, and an introduction to algorithm analysis. Height-balanced (AVL) trees. B-trees, including 2-3 trees. Hashing. As time permits, union and find operations on sets; depth-first search and shortest path algorithms on graphs; minimum cost spanning trees.

COM 1205 Software Design and Development 4 Q.H.

(Prereq. COM 1201)

This course will present the latest ideas and techniques in software methodology and provide a means for students to apply these techniques. Students, working in groups, will be expected to design, implement, test, and document a large software project.

COM 1310 File Structures 4 Q.H.

(Prereq. COM 1201 and COM 1131)

Access characteristics of secondary storage devices (tapes, disks and drums). External sorting and merging for heap files. Algorithms for common file operations on heap, hashed, ISAM, B-tree, dense indexes and TRIE file structures. Overflow techniques. Comparison of operations by block access count. Files with variable length records. As time permits, data compression techniques; structures for secondary access: multilist and inverted files; retrieval for partially specified records and ranges of records.

COM 1315 Data Base Management I 4 Q.H.

(Prereq. COM 1310 and MTH 1409)

This course will emphasize the concepts and structures necessary to design and implement a data base application and survey some existing systems. Introduction to data base concepts. Data base modeling and entity relationship diagrams. Review of physical data organization. The relational model, QUEL,

and ISBL. Design of a relational model and normal forms. Data definition and data manipulation languages for network and hierarchical models. Comparison of models, some languages and implementations for these models.

COM 1316 Data Base Management II 4 Q.H.

(Prereq. COM 1315)

This course will focus on data base systems that support relational model applications. Topics will include recovery, query optimization, integrity, security and concurrency, with examples based on INGRES and SYSTEM R. Additional topics such as data base machines may be covered at the discretion of the instructor. Students will implement a small relational DBMS.

COM 1330 Systems Programming 4 Q.H.

(Prereq. COM 1111 or COM 1114 and COM 1131)

The purpose of this course is to familiarize the student with organization of the components of a computer operating system, their functions and mutual interactions. Assemblers, the structure of an object file and an executable file, linkers. Multiprogramming, multiprocessing, and time sharing. Memory management, device management, file management, libraries, I/O control, shared images.

COM 1335 Operating Systems I 4 Q.H.

(Prereq. COM 1330)

In-depth study of algorithms and problems encountered in operating system design. Asynchronous concurrent processes, monitors, deadlocks, virtual performance measurement and evaluation, security.

COM 1336 Operating Systems II 4 Q.H.

(Prereq. COM 1335)

Students will have the opportunity to gain hands-on experience working with a small operating system and writing programs to enhance its capabilities by implementing some of the algorithms studied in COM 1335.

COM 1350 Automata and Formal Languages 4 Q.H.

(Prereq. COM 1201 and MTH 1409)

Topics include finite-state machines and regular expressions; context-free grammars; parsing of deterministic context-free languages; pushdown automata; pumping theorems for regular and context-free languages; Turing machines, Church's thesis and the halting problem.

COM 1355 Compiler Design 4 Q.H.

(Prereq. COM 1131 and COM 1350)

This is a course on the front end of a compiler. Quick review of FSA and language terminology. Topics include lexical analysis, recursive descent parsing, look-ahead parsing, precedence parsing, syntax-directed translation and syntactic error recovery. Particular emphasis will be on LALR (1) parsing as it is used in compiler-compilers. Possible projects include writing a recursive descent parser for a small language and/or practice using a compiler-compiler.

COM 1356 Compiler Design II**4 Q.H.**

(Prereq. COM 1355)

This is a course on the middle phase and back end of a compiler. It includes static issues such as type checking, symbol table organization, scope rules, and aggregate types such as arrays and records. Run-time structure, code optimization techniques and error recovery. Students will construct a compiler using a compiler-compiler for the front end and will write their own back end.

COM 1358 Analysis of Programming Languages**4 Q.H.**

(Prereq. COM 1102, COM 1110, COM 1355 and COM 1201)

Topics include run-time behavior of programming languages; interpreters, static and dynamic scoping, parameter passing mechanism, implementation of functions and recursion; and features of current languages and their implementation.

COM 1370 Computer Graphics**4 Q.H.**

(Prereq. COM 1201 and MTH 1301)

The course focuses on characteristics and programming of graphics output devices. Basics point and line drawing, two-dimensional displays, clipping and windowing. Pictures: data structures and display file organization. Interaction: graphical input and external events-operating system considerations. Some three-dimensional drawing will be included as time permits.

COM 1390 Analysis of Algorithms**4 Q.H.**

(Prereq. COM 1201, MTH 1125, MTH 1409 and MTH 1301)

This course introduces the basic principles and techniques of analyzing algorithms. Topics include algorithms on sorting, searching, graphs, and digraphs (such as minimal spanning tree, shortest path, depth-first search, components of a graph); methods involving string matching, polynomials and matrices. If time permits, fast Fourier transform and the concept of N P-complete problems.

COM 1410 Artificial Intelligence**4 Q.H.**

(Prereq. COM 1102, COM 1201 and MTH 1409)

This course focuses on analysis of current computer algorithms dealing with problems such as theorem proving, chess playing, general problem solvers, robotics, symbolic computation, perceptions, self-reproducing automated parallel machines.

COM 1420 Principles and Methods in Interactive Systems Design**4 Q.H.**

Introduction to principles of computer-human interface (software) design, and methodologies of implementation, evaluation, and research in computer-human interaction. Topics include user psychology, dialog styles (menu interfaces, command languages, icons, windows etc.), screen layout and design, input and output devices (mouse, touchscreen, keyboard, voice technology, etc.), error handling/reporting and system response time, user documentation, and "intelligent" interfaces. Also techniques for implementing software-human interfaces, and methodologies for testing and assessing the "usability" of interactive systems.

COM 1600 Computer Science Project**4 Q.H.**

(Prereq. COM 1102, COM 1110, COM 1355, and COM 1201)

This course will present the latest ideas and techniques in software methodology and provide a means for students to apply these techniques. Students, working in groups, will be expected to design, implement, test, and document a large software project.

COM 1620 Computer Science Seminar**4 Q.H.**

(Prereq. Computer science seniors only)

(This course superseded by COM 1621 as of academic year 1988-89.)

This course acts as a "capstone" course for computer science majors. Meetings are held once or twice per week and a current topic or problem in computer science is presented by an expert in the subject matter. Students are assigned additional questions and/or problems to research in the topic area as an aid to their developing a deeper appreciation and understanding of various aspects of computer science.

COM 1800 Directed Study in Computer Science**4 Q.H.***

(Prereq. Permission of the instructor. May be repeated for credit.)

Programs of directed study, held one or more quarters, are available for highly motivated students who wish to explore special topics in computer science in depth. Directed study can be used as an opportunity to examine familiar material in fresh ways or to explore new material that is not offered in formal courses. It is hoped that directed study programs will provide students strong in computer science and related sciences a chance to develop the art and skill needed to work independently and creatively in computer science.

Engineering Technology

Chemical Engineering Technology

CHT 1381 Nuclear Technology 4 Q.H.*
(Prereq. MTH 1195 and PHY 1196)

Atomic and nuclear structure, discovery and nature of radioactivity-clear reactions and energy-induced nuclear transformations, neutron properties, applications of radio nuclides. Radiological safety nuclear instrumentation for particle detection, monitoring, and experimentation. The fission process and its applications; nuclear reactors—their classification, design, and application, nuclear fuel processing, radioactive waste disposal. Supplementary laboratory experiments.

Computer Technology

CT 1105 Introduction to Programming 4 Q.H.

A high-level structured language (PASCAL) will be taught and used as a vehicle for implementing program. Students will write and run programs using Northeastern's computer. Topics: using the Northeastern University computer, flow charting program construction, computations involving maxima and minima, arrays, simple recursion, subroutines.

CT 1310 FORTRAN 4 Q.H.
(Prereq. CT 1105 or equiv.)

This important scientific language will be taught with engineering applications. Students will write and run FORTRAN programs using the Northeastern University computer. Topics: arithmetic replacement, input, output, control and specification statements, looping, arrays, functions and subroutines.

CT 1311 Programming with "C" Language 4 Q.H.
(Prereq. CT 1105 or CT 4105)

Students will write programs in "C," a general purpose programming language useable for operating systems or numerical, text-processing and data-base programs. A basic knowledge of programming fundamentals is assumed. Topics will cover basic data types, operators and expressions, control flow (if-else, while, etc.), functions and program structure, external variables, scope rules, pointers, address arithmetic, structure and union, and the C I/O Library.

CT 1320 COBOL 4 Q.H.
(Prereq. CT 1105 or equiv.)

This important business language will be taught with general applications. Student will write and run COBOL programs using the Northeastern University computer. Topics: divisions names rules, picture clauses, verbs, input/output instructions, levels, working storage, arithmetic, corresponding accept, display, compute, copy, update logic, table logic, redefines, search, inline and COBOL sorts.

CT 1330 Nonnumerical Algorithms 4 Q.H.
(Prereq. CT 1105)

Data, structures, storage, manipulation and retrieval

methods. Students will write and run data manipulation programs using Northeastern's computer. Topics: stacks, queues, lists, trees, heaps, sets, graphs, searching, sorting, key processing, relational models.

CT 1335 Numerical Algorithms 4 Q.H.
(Prereq. CT 1310)

Computer methods for solving mathematical problems. Students will write and run application programs using the Northeastern University computer. Topics: deterministic vs. stochastic methods, random-number generators, iterative vs. noniterative solutions, maxima and minima in two and three variables, curve fitting in two and three variables, integrals, trapezoidal and Simpson's rules, slopes, difference equations in two and three variables, vector and matrix algebra, simultaneous linear equations, nonlinear equations, permutations, and combinations.

CT 1340 Modern Programming Techniques 4 Q.H.
(Prereq. CT 1105)

Structured methods for developing complex computer programs. Students will develop and write sections of complex programs. Students will run programs on the Northeastern computer. Topics: top down design, hierarchy diagrams, HIPO charts, composite design, structured analysis, team programming.

CT 1341 Basic Computer Organization 4 Q.H.
(Prereq. CT 1105)

Fundamental aspects of basic computer components. Topics: the functions and general operating characteristics of CPU's, primary/secondary and mass memory, controllers, printers, card readers, terminals. What an operating system does, scheduling, monitoring, spooling, paging, system programs, virtual memory, multiprogramming, multiprocessing.

CT 1342 Advanced Computer Organization 4 Q.H.
(Prereq. CT 1105)

The operating and performance characteristics of complex and special purpose components. Topics: how an operating system works, memory hierarchies, fiber optics, bubble memory, mass storage, computer networks, distributed processing, data flow, cache memory, associative memory, special purpose/parallel processors, system performance measures.

CT 1345 Assembly Language 4 Q.H.
(Prereq. CT 1105)

A typical microprocessor assembly language will be taught. Students will write and run homework problems using a microprocessor simulator package implemented on the Northeastern University computer. Topics: binary arithmetic, instruction sets, addressing modes, code conversion, subroutines, macros, I/O.

* Lab fee required.

CT 1355 Micro Peripheral Hardware 4 Q.H.

(Prereq. CT 1375)

The elements of microprocessor peripheral hardware and its interfacing. Students will configure microprocessor systems using block diagrams showing relevant handshaking signals. Topics: serial and parallel I/O devices, DMA and interrupt control devices, bus arbitration, memory management units, counter timers as extensions of basic CPU functions.

CT 1356 Complex Peripheral Hardware 4 Q.H.

(Prereq. CT 1355)

The interfacing and implementation of special purpose hardware. Students will configure systems, using block diagrams showing relevant handshaking signals. Topics: virtual memory, rotating media, printers, terminals, bus extension concepts, co-processors.

CT 1360 Industry Software 4 Q.H.

(Prereq. CT 1342, CT 1310)

A survey of current commercial software packages and methods. Students will exercise commercial packages implemented on Northeastern's computer where applicable. Topics: specific packages and methods which vary from year to year to maintain currency. They will be drawn from the following general categories: data base management, scientific and statistical analysis, security and privacy, software assurance, and documentation.

CT 1365 Industry Hardware 4 Q.H.

(Prereq. CT 1356)

A survey of the latest industrial developments and trends in computer hardware. Conducted as a seminar.

CT 1368 Semiconductor Logic 4 Q.H.

(Prereq. EET 1152)

A detailed analysis of the bipolar and MOS transistors in saturated and cutoff condition and implementation of these concepts to form basic logic and decision-making circuits. Students will convert logical expressions into hardware configuration representations. Topics: Ebers-Moll modeling, PMOS, NMOS, CMOS construction, logic families.

CT 1369 Computer Logic 4 Q.H.

(Prereq. CT 1368)

An introduction to the hardware building blocks of general computers. Students will specify configurations of lower level components to achieve composite logical functions, e.g., construct a register from NAND gates. Topics: gates, flipflops, registers, decoders, ALUs, memory arrays.

CT 1374 Introduction to CPU Hardware 4 Q.H.

(Prereq. CT 1345 or equiv.)

The internal operation of a microprocessor CPU. A black box approach is used. Students purchase and keep individual single board computers for doing homework and simulation. Topics: registers and timing control, programmable gate arrays, array processors as CPU models.

CT 1375 CPU Hardware Architecture 4 Q.H.

(Prereq. CT 1374)

The performance characteristics of commercially

available CPU's. Students will write code for 4-bit through 32-bit processors. Topics: the characteristics of 4004, 4008, 8080, Z80, Z800, 8086, 1802 F8 and 6800 processors, and how to use one processor in place of another. *Note:* the list of processors examined may vary from year to year to maintain currency.

CT 1380 Data Communication Methods 4 Q.H.

(Prereq. CT 1310)

Functional and operational aspects of data communication devices and software. A black box approach will be used. Topics: modems, control units, multiplexers, concentrators, front end processors, synchronous/asynchronous/half duplex/full duplex codes and procedures, Bisynch/SDLE/HDLC, BYTE and BIT protocols, protocols, error checking, point to point/multipoint/STAR/MESH/CLUSTER networks.

CT 1381 Operating Systems 4 Q.H.

(Prereq. CT 1351)

The basic principles of operating system implementation. Students write and run programs to exercise elements of the University's operating system when applicable. Topics: resource, memory, processor and device management commands and strategies, I/O programming, swapping, overlays, jobs and process scheduling, and other operating systems.

CT 1382 Computer Graphics Programming 4 Q.H.

(Prereq. CT 1310)

Students are introduced to generalized techniques for the computer plotting of 2- and 3-dimensional shapes. Students write and run programs using the University's computer and digital plotter. Topics: 2D transforms, 3D to 2D transforms, 3D transforms, surface representation, shading, character, curve fitting, graphic data structures.

CT 1383 Data Bases 4 Q.H.

(Prereq. CT 1330)

An introduction to data-base organization structure and management. Students write and run programs exemplifying techniques developed in class on the University's computer. Topics: access methods, attributes, indices, keys, querying, searching and matching, file sets, normal forms, random access.

CT 1384 Large System Assembly Languages

(Prereq. CT 1345)

4 Q.H.

Typical large computer system assembly languages. Students will write and run illustrative programs on the University's computer. Topics: edit and translate instructions, macro writing, program sectioning, linking, data representation, addressing, instruction formats in BAL and VAX-11 assembler languages.

CT 1385 Introduction to Simulation**Programming****4 Q.H.**

(Prereq. CT 1335)

Computer methods for solving simulated phenomena. Students will write and run programs implementing simulations specified by instructor. Students will not be responsible for the validity or evaluation of models except in simple cases. Topics: simple queues; multiserver queues; priorities, including first in first

out, last in last out, and time aging of data; simple frequency distributions; use of SIMULA, GPSS, and standard Subroutine Library Routines.

CT 1386 Development System Hardware 4 Q.H.
(Prereq. CT 1375)

A study of the principal hardware capabilities and current trends in micro computer level system. Included are both single users and network-oriented system.

CT 1387 Bit Slice Micro Computers 4 Q.H.
(Prereq. CT 1355)

The epitome of hardware flexibility is represented by the bit slice CPU. Demonstrates the basic design ground rules common to this style of hardware design.

CT 1388 Micro Controllers 4 Q.H.
(Prereq. CT 1374)

The commercial segment of micro computers has been satisfied by a variety of single-chip 4-bit micro controllers. A detailed contrast/comparison will be done on several of these devices, including the IMS-1000, S2000, COPS, and PPS-4.

CT 1389 Single-Chip Microprocessors 4 Q.H.
(Prereq. CT 1374)

When small 6-bit intelligent devices are rewired in high volume, the single-chip microprocessor in the form of the 3870, 8084 Z8, and others comes into play. An understanding of the hardware limitations of single-chip system presents the basis for this subject material.

CT 1390 Special Problems in Computer Technology 4 Q.H.

Theoretical or experimental work under individual faculty supervision.

Electrical Engineering Technology

EET 1151 Circuit Analysis I 4 Q.H.
(Prereq. MTH 1193 and PHY 1193)

Topics include Ohm's law, Kirchhoff's current and voltage laws, equivalent resistances and sources, mesh and modal analysis, network theorems, two-port networks and power relations—all with respect to direct currents; energy storage, singularity functions, response of R, L, and C elements to singularities.

EET 1152 Circuit Analysis II 4 Q.H.
(Prereq. EET 1151)

Topics include complex algebra, phasors, frequency domain, mutual inductance, transformers, steady-state a-c theory, driving point and transfer impedances, power and energy in a-c circuits; Laplace transforms; partial fraction expansion; Laplace transform techniques applied to the solution of RLC networks.

EET 1310 Electrical Measurements 4 Q.H.
(Prereq. EET 1353)

The course covers standards of measurements; dimensional analysis; errors and measurement of dispersed data; discrete and continuous variables, binomial distribution, normal distribution; guaranteed error; methods of resistance measurements; digital voltmeters and analog-to-digital conversion; voltage references; potentiometers and a.c. bridges.

EET 1311 Electronics I 4 Q.H.
(Prereq. EET 1152)

Topics include semiconductor diodes and applications, transistor-biasing techniques, graphical analysis of basic amplifiers, d.c. and a.c. load lines.

EET 1312 Electronics II 4 Q.H.
(Prereq. EET 1311)

Topics include small-signal, low-frequency transistor models; gains and impedances at midband; frequency effects in transistor circuits; multistage circuits; transistors used as current sources.

EET 1313 Electronics III 4 Q.H.
(Prereq. EET 1312)

The course covers review of Bode plots, transistor circuits at low and high frequencies, feedback operational amplifiers, differential amplifiers, applications.

EET 1314 Pulse & Digital I 4 Q.H.
(Prereq. EET 1311)

The course covers switching characteristics of semiconductor devices; wave generation and shaping, using combinations of passive and integrated circuit components; comparators, hysteresis, and the dual ramp analog to digital converter-voltmeter circuits, voltage-to frequency conversion.

EET 1315 Pulse & Digital II 4 Q.H.
(Prereq. EET 1314)

Topics include digital operations; logic statements and theorems; minimization of logic functions; logic gates and the characteristics of the integrated logic families; flip-flops, counters and registers; introduction to sequential circuit design; sample and hold circuits; analog-to-digital conversion.

EET 1317 Principles of Communication Systems I 4 Q.H.
(Prereq. EET 1313)

Topics include signal analysis using Fourier methods; noise in communication systems; frequency selective amplifiers, including wideband; transistor power amplifiers AF and RF; oscillators; signal sources and applications.

EET 1318 Principles of Communication Systems II 4 Q.H.
(Prereq. EET 1317)

The course covers basic theory of amplitude, frequency, phase and pulse code modulated systems; analysis of modulating and demodulating circuits; carrier systems using SSB; system block and level diagrams; logic control circuits in communication systems; modems.

EET 1319 Principles of Communication Systems III
4 Q.H.

(Prereq. EET 1318)

The course covers fundamentals of digital communications; sampling requirements; analog-to-digital conversion methods; system capacity and bandwidth; comparison of practical digital systems PAM, PCM, PFM, PWM; time and frequency division multiplexing; data decoding; selected examples from telemetry and computer links.

EET 1320 Electricity and Electronics I
4 Q.H.
(Prereq. MTH 1193 and PHY 1193)

The course covers introduction to circuit analysis, resistive networks, periodic excitation function, steady-state ac circuits; the physical foundations of electronics and the physical operation of electronic devices.

EET 1321 Electricity and Electronics II
4 Q.H.
(Prereq. EET 1320)

The course covers single-stage electronic circuits, magnetic circuits and transformers, electro-mechanical energy conversion, dc machines, ac machines.

EET 1323 Electronic Laboratory
2 Q.H.
(Prereq. EET 1312 or concurrently)

The course covers experiments dealing with laboratory equipment (meters and oscilloscopes) techniques; junction and field-effect transistor characteristics; vacuum and semi-conductor diodes; power supplies, including the regulated type; silicon-controlled rectifiers, resistance-coupled amplifiers using transistors, including feedback methods.

EET 1324 Circuits Laboratory I
2 Q.H.
(Prereq. EET 1151)

The course covers experimentation in electronic circuit theory utilizing various measurement techniques. Instrumentation verification of circuit theorems; response of circuits to steps and impulses, oscilloscope theory and applications.

EET 1325 Circuits Laboratory II
2 Q.H.
(Prereq. EET 1324)

The course offers further experimentation in electrical circuits and measurement techniques. Experiments include response of circuits to steps and impulses, nonlinear devices, terminal characteristics of active devices, log modulus plots, network parameters and synthesis. Fourier analysis and synthesis.

EET 1327 Advanced Electronics Laboratory I
2 Q.H.

(Prereq. EET 1323)

The course covers experiments dealing with the use of oscilloscopes, the examination of transistor audio amplifiers, push-pull amplifiers, drivers, pulse and video amplifiers, transients and wave-shaping circuits, audio frequency oscillators, and the study of operational amplifiers.

EET 1328 Advanced Electronics Laboratory II
2 Q.H.

(Prereq. EET 1327)

The course covers experiments dealing with the modulation of a class C amplifier, the diode detector, basic timing circuits, RF and crystal oscillators, astable multivibrators, logic gates, flip-flops, binary adders, registers and counters; active filters, frequency modulation detectors, and analog-to-digital and digital-to-analog conversion.

EET 1329 Advanced Electronics Laboratory III
2 Q.H.

(Prereq. EET 1328)

Topics include spectral studies of FM and PM waves, amplitude limiters, the balanced modulators and single sideband generators; integrated circuit timers and monolithic random access memory; monolithic phase-locked loop as well as a series of microwave experiments and digital experiments.

EET 1330 Energy Conversion
4 Q.H.
(Prereq. EET 1152 and MTH 1195)

Topics include generalized theory of rotating energy conversion devices; steady-state operation of the multiply-excited direct-current machine; control of speed; special machines; transformers; steady-state considerations of induction and synchronous machines; generalized machine and circuit model; Laplace transform techniques applied to the analysis of dynamic operating modes of rotating machines.

EET 1337 Distributed Systems
4 Q.H.
(Prereq. MTH 1195 and PHY 1193)

Topics include radiation, transmission, and reception of electromagnetic waves; distributed-line constants and traveling waves of transmission lines; differential equations of the uniform line.

EET 1353 Circuits Analysis III
4 Q.H.
(Prereq. EET 1152)

The course covers application of differential equations to the solutions of linear, time-invariant electrical networks; introduction to singularity functions, convolution, and time-domain transient analysis; network topology and duality; introduction to the methods of transformation calculus and complex frequency concepts.

EET 1354 Circuits Analysis IV
4 Q.H.
(Prereq. EET 1353)

Topics include signal analysis in the frequency domain; Fourier series: Fourier and Laplace transform methods; a varied selection of circuit problems using Laplace transforms and related theorems.

EET 1360 Engineering Analysis I
4 Q.H.
(Prereq. MTH 1195, EET 1152)

The course covers linear algebra and its application to circuit equations; solution of linear differential equations, including an introduction to Laplace transforms.

EET 1362 Basic Power Systems I 4 Q.H.

(Prereq. EET 1354)

Topics include consideration of power transmission lines; line constants; current voltage and power relations; introduction to electric-power distribution loads, feeders, and substations; application of matrices.

EET 1363 Basic Power Systems II 4 Q.H.

(Prereq. EET 1362)

Topics include consideration of symmetrical and unsymmetrical faults; protective devices—application and coordination; power flow in electric circuits; steady-state power limitations of systems; voltage regulation theory and application.

EET 1364 Basic Power Systems III 4 Q.H.

(Prereq. EET 1363)

Topics include computer applications to power systems with emphasis on load-flow studies, basic ideas of systems planning, short-circuit studies, and system stability.

EET 1370 Digital Computers 4 Q.H.

(Prereq. EET 1311)

Introduction to digital computer design. Topics include general computer organization, number systems and number representations, design characteristics of major computer units, Boolean algebra applications to computer design.

EET 1371 Digital Computers II 4 Q.H.

(Prereq. EET 1370)

Examination of microprocessor architecture and organization. Study of the machine language and assembly coding of an industry-accepted microprocessor. A suitable topic from the current literature will be analyzed. Assembly language coding problems will be assigned.

EET 1377 Control Engineering I 4 Q.H.

(Prereq. EET 1354 and MTH 1195)

Topics include analysis of linear servomechanisms under both transient and steady-state conditions; signal flow graphs; Laplace transforms used in the formulation of block diagrams and transfer function.

EET 1378 Control Engineering II 4 Q.H.

(Prereq. EET 1377)

Topics include system stability; root locus techniques; treatment of Nyquist criteria and Bode diagram methods for systems evaluation.

EET 1390 Optical Instrumentation 4 Q.H.

(Prereq. MTH 1192 and PHY 1193)

The course focuses on telescopes, microscopes, etc., as optical system components. Includes magnification, aberrations, resolution criteria, photometry. Compatibility of system components and optimization of systems. The basic nonimage-forming systems used for analysis control and metrology.

EET 1399 Special Problems in Electrical Engineering Technology 4 Q.H.

(Prereq. Consent of department chairperson)

The course offers theoretical or experimental work under individual faculty supervision.

General Engineering Technology

GET 1100 Computer Programming for Engineering Technology 4 Q.H.

(Prereq.—or concurrently—MTH 1192)

Introduction to the use of computers in the solution of problems using FORTRAN on interactive terminals. Students write and run programs to compute sequences, averages, etc. Other capabilities of the FORTRAN language, including DO loops, subscripted variables and alphanumeric manipulation matrix algebra, and numerical methods.

GET 1170 Engineering Graphics I 4 Q.H.

The study of concepts and the development of skills to present and to analyze objects and systems used in design through the principles of graphical geometric constructions, orthographic projections (multi-view, two-dimensional drawings), and the design process. Axonometric drawing.

GET 1171 Engineering Graphics II 4 Q.H.

(Prereq. GET 1170)

Continuation of the study of concepts and the development of skills to present and to analyze objects and systems used in design including dimensioning, sectioning, threads, fasteners, assembly, and detail drawings as well as the design process. A design project.

GET 1315 PASCAL (A Second Language) 4 Q.H.

(Prereq. GET 1100 or equiv.)

An introductory course in programming computers using the PASCAL language. Students will write and run programs using the University's computer facilities. This course may not be used as a technical elective in Computer Technology Program.

GET 1364 Kinematics 4 Q.H.

(Prereq. GET 1171, GET 1100, PHY 1191)

Study of four-bar linkages, sliders, etc., using orthogonal components of vectors, instantaneous centers, equivalent linkages, effective cranks, etc., emphasizing graphical solutions, including an introduction to the computer to enhance these concepts. Reverted and epicyclic gear trains are analyzed, as are cam displacement, velocity, and acceleration diagrams.

Mechanical Engineering Technology

The course descriptions listed under Mechanical Engineering Technology are intended to show the general scope of the subject that will be covered. Since courses are continually updated, specific topics or methods of approach may vary from term to term.

MET 1301 Mechanics A 4 Q.H.

(Prereq. MTH 1193; or MTH 4120; PHY 1191 or PHY 4117)

Topics include forces, moments, couples, statics of particles and rigid bodies in two and three dimensions. Distributed forces: external and internal. First moments and centroids. Analysis of structures: trusses, frames, and machines.

MET 1302 Mechanics B**4 Q.H.**

(Prereq. MET 1301 or MET 4301)

Topics include friction, second moments, and virtual work. Kinematics of particles; rectilinear and curvilinear motion of dynamic particles. Force, mass, and acceleration; work and energy.

MET 1303 Mechanics C**4 Q.H.**

(Prereq. MET 1302 or MET 4302)

Topics include impulse and momentum of particles. Kinematics and dynamics of rigid bodies: force, mass, and acceleration. Dynamics of rigid bodies: work and energy, impulse and momentum. Introduction to mechanical vibration.

MET 1314 Stress Analysis A**4 Q.H.**

(Prereq. MET 1301 or MET 4301)

Topics include axially loaded members; stress and strain, allowable stresses, factor of safety, temperature effects, indeterminate members; thin-walled pressure vessels; centric loading of bolted and welded connection; shear and moment in beams; eccentrically loaded connections; flexural and transverse shearing stresses in beams.

MET 1315 Stress Analysis B**4 Q.H.**

(Prereq. MET 1314 or MET 4314)

Topics include determinate and indeterminate beam deflections and reactions by numerical and graphical integration and area moment methods; theorem of three moments. Torsional stresses and strains; power transmission; eccentric loads on struts, beams, riveted and welded joints; combined and principle stresses; Mohr's circle; theories of failure.

MET 1319 Mechanics**4 Q.H.**

(Prereq. MTH 1193 and PHY 1191)

Kinematics of particles: rectilinear and curvilinear motion of dynamic particles. Force, mass, and acceleration; work and energy. Impulse and momentum of particles. Kinematics and dynamics of rigid bodies: force, mass, and acceleration. Dynamics of rigid bodies: work and energy, impulse and momentum.

MET 1330 Mechanical Design A**4 Q.H.**

(Prereq. MET 1315 or MET 4315; MET 1380 or MET 4380)

The course covers introduction to mechanical design, the design process, design factors, creativity, optimization, human factors, value engineering. These principles are discussed and developed through simple design projects. Principles of design, properties and selection of materials; stress concentrations; strength under combined stresses; theories of failure; impact and fluctuating and repeated loads.

MET 1331 Mechanical Design B**4 Q.H.**

(Prereq. MET 1330 or MET 4330)

Topics include stresses; deformation and design of fasteners, screws, joints, springs, and bearings; lubrication and journal bearings. Stresses and power transmission of spur, bevel, and worm gear; shaft design; clutches and brakes.

MET 1340 Thermodynamics A**4 Q.H.**

(Prereq. PHY 1192 or PHY 4118)

Topics include general theory of heat and matter, laws of thermodynamics, energy-transformation principles; availability of energy; properties and processes for pure substances and ideal gases. Thermodynamic properties and processes of liquids and vapors; tables and charts; mixtures of fluids; vapor cycles.

MET 1341 Thermodynamics B**4 Q.H.**

(Prereq. MET 1340 or MET 4340)

The course covers theory of vapor engines and analysis of actual engine types using gas and vapor compression; internal combustion engines; theory of gas and vapor flow through orifices and nozzles; principles of gas compression; analysis of vapor compression; refrigeration systems; low-temperature refrigeration cycles; and absorption refrigeration systems.

MET 1342 Refrigeration and Air Conditioning

(Prereq. MET 1341 or MET 4341)

4 Q.H.

The course focuses on air conditioning principles, including psychometrics and heat pumps. Course covers calculation of heating and cooling loads in accordance with A.S.H.R.A.E. practices; principles of gas compression; analysis of vapor compression; refrigeration systems; low-temperature refrigeration cycles; and absorption refrigeration systems.

MET 1343 Heat Transfer**4 Q.H.**

(Prereq. MET 1341 or MET 4341)

Topics include the primary modes of heat transfer; thermal conductivity; thermal conductance/resistance concept; thermal-electrical analogy; combined heat-transfer mechanisms; basic equations of conduction; analytical solutions of various steady-state conduction problems. The course also covers dimensional analysis and similarity considerations; natural and forced convection; hydrodynamic and thermal boundary layers; black-body radiation; Kirchhoff's law; emissivity and absorptivity; radiation between simple bodies; numerical methods; log mean temperature differences; overall heat-transfer coefficients; heat exchanger effectiveness; tubular exchanger design; regenerative and evaporative heat exchangers, and heat-transfer engineering problems.

MET 1370 Fluid Mechanics A**4 Q.H.**

(Prereq. MET 1302 or MET 4302)

Topics include hydrostatics, principles governing fluids at rest, pressure measurement; hydrostatic forces on submerged areas and objects; simple dams, fluids in moving vessels; hoop tension fluid flow in pipes under pressure; fluid energy, power, and friction loss; Bernoulli's Theorem, flow measurement.

MET 1371 Fluid Mechanics B**4 Q.H.**

(Prereq. MET 1370 or MET 4370)

The course covers pipe networks and reservoir systems; flow in open channels; uniform flow; energy, friction loss, minor losses, velocity distribution, alternate stages of flow, critical flow; nonuniform flow; accelerated and retarded flow; hydraulic jump and waves.

MET 1380 Materials A**4 Q.H.**

Lectures on fundamental metallic structures; general metallurgical information covering theoretical aspects of properties, testing, and failure of metals. Supplemented by visual aids. Lectures on alloying and hardening of metals, refinement of metals, equilibrium diagrams, characteristics of engineering metals, principles of metal fabrication.

MET 1390 Measurement & Analysis Lab**2 Q.H.**

(Prereq. MET 1314 or MET 4314; GET 1100 or GET 4100; MTH 1195 or MTH 4122; PHY 1193 or PHY 4119)

The course includes experimental procedures for the collection and analysis of data by graphics and numerical methods including computer applications, report writing that draws conclusions relative to accuracy, precision, true values, and measured values as they relate to basic mechanical measuring instruments for length, area, volume, specific gravity, pressure, temperature, and time as these parameters are utilized in making mechanical measurements.

MET 1391 Technology Lab A**2 Q.H.**

(Prereq. MET 1390 or MET 4390; MET 1315 or MET 4315; MET 1380 or MET 4380; or concurrently)

The course includes experimental procedures to determine mechanical properties of materials under tensile, compressive, torsional, direct shear, flexural, impact, fatigue, and creep loading conditions as they are affected by normal and abnormal environmental conditions; also as they are affected by homogeneity, non-homogeneity, isotropy, and non-isotropy.

MET 1392 Technology Lab B**2 Q.H.**

(Prereq. MET 1390 or MET 4390, MET 1370 or MET 4370; or concurrently)

The course includes experimental procedures to determine the physical properties of incompressible fluids and to measure the flow rates and velocities utilizing pilot tubes, orifice plates, venturii and weirs flow meters, U-tube differential manometers, and piezometers as the fluid flows through open channels, partially filled conduits, conduits under pressure, pipe networks, turbines and pumps.

MET 1393 Technology Lab C**2 Q.H.**

(Prereq. MET 1390 or MET 4390; MET 1341 or MET 4341; or concurrently)

The course covers basic thermodynamic relations; experimental procedures to examine the flow of compressible fluids and steam and the energy conversion of a fuel into a working substance and the related heat-transfer mechanisms. Operating characteristics of thermal generators, engines, and compressors.

MET 1394 Technology Lab D**2 Q.H.**

(Prereq. MET 1393 or MET 4393; MET 1341 or MET 4341; MET 1343 or MET 4343; or concurrently)

The course includes experimental procedures to examine the operating characteristics and efficiencies of internal combustion engines, brake horsepower, indicated horsepower, friction horsepower, mean effective pressure, fuel consumption, torque, ignition timing,

manifold pressure, and compression ratios and internal engines as energy conversion systems; energy conversion of fuels.

MET 1395 Technology Lab E**2 Q.H.**

(Prereq. MET 1390 or MET 4390; MET 1342 or MET 4342; MET 1343 or MET 4343)

The course includes experimental, analytical, and design projects to examine refrigeration, air conditioning, and heating-pump cycles.

MET 1396 Machine Shop**4 Q.H.**

Introduction to study of machines for metal processing, cutting tools, and fluids; machinability, automatic machinery.

MET 1414 Mechanical Vibrations**4 Q.H.**

(Prereq. MET 1303, MET 4303)

Elements of vibrating systems; one degree of freedom (undamped free and forced vibration from Newton's law of motion and energy methods), natural frequencies; damped free and forced vibration; impedance and mobility; systems with more than one degree of freedom; influence coefficients, Lagrange's equations, generalized coordinates, vibration absorber.

MET 1415 Experimental Stress Analysis**4 Q.H.**

(Prereq. MET 1315 or MET 4315)

Theory and experimentation showing the application of extensometers and electrical strain gauges as transducers in the field of experimental stress and strain analysis. Theory and laboratory practice on photoelastic methods as applied to classical model analysis and modern coating analysis.

MET 1416 Stress Analysis C**4 Q.H.**

(Prereq. MET 1315 or MET 4315)

Topics include curved beam, asymmetrical bending of beams, shear-center and shear stresses on thin sections, composite beams; columns energy absorption and resilience, inertial stresses, impact loading, deflection of beams by energy methods.

MET 1444 Power Generation**4 Q.H.**

(Prereq. MET 1341 or MET 4341).

Topics include basic power generation cycles; gas turbine cycles; effects of combustor temperature, intercooling, etc., on cycle performance; Rankine regenerative cycles, effects of steam temperature, pressure, number of feedwater heaters, etc., upon performance; steam generation equipment: boilers reactors. The course also covers fossil fuel characteristics and effects on boiler design; combustion analysis; draft calculations, axial and centrifugal fan performance characteristics; pump design and performance consideration; heat-exchanger design considerations. The course also includes applications of principles of economics to cycle and performance considerations use of load curves; economic considerations of heat rate; economics of equipment selection; study of auxiliary equipment such as precipitators and flue-gas desulfurization systems.

MET 1481 Materials B**4 Q.H.**

(Prereq. MET 1380 or MET 4380)

The course focuses on the study of inorganic materials (polymers, glasses, ceramics, cements, wood), and materials having important electrical and magnetic properties. A summary of the most recent applications for the fabrication and uses of both metals and nonmetals. Structures of metals, imperfections, phase diagrams effect of temperature on structure and properties of metals (annealing, recrystallization, recovery, precipitation, diffusion) strengthening mechanisms, mechanical properties of nonferrous metals. Laboratory: experiments in preparation of samples, selection, polishing, and etching; examination of nonferrous metals, use of the microscope, linear analysis construction of cooling curves, and simple binary-phase diagrams.

MET 1482 Applied Metallurgy**4 Q.H.**

(Prereq. MET 1481 or MET 4481)

Lectures include mechanical properties of ferrous

metals; the iron-carbon diagram; high-temperature alloys, hardening methods, impact tests, effects of environment on metals. Manufacturing processes: methods of fabrication, limitations on the use of different materials and their processing, casting, welding, cutting, drawing, powder metallurgy. Laboratory: includes experiments on analysis of stress-strain diagrams of iron and steel, heat treatment of steels, surface corrosion, tempering and drawing, use of metallograph and analysis of the results. Experiments in cold rolling, swagging, drawing of nonferrous metals, and analysis of the results. Tension, shear, fatigue, and machinability tests on ferrous metals.

MET 1499 Special Problems In Mechanical Engineering Technology**4 Q.H.**

(Prereq. Consent of department chairperson)

Theoretical or experimental work under individual faculty supervision.

African-American Studies

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Roman numerals at the end of course descriptions refer to *Core Curriculum* categories listed on pages 1-2.

AFR 1100 Introduction to African-American Studies**4 Q.H.**

The course touches on several of the possible historical, sociological, cultural, and political avenues of study in the broad interdisciplinary spectrum of African-American Studies. It is intended to help provide an introductory overview of the field and will offer students the opportunity to identify areas for more specific focus.

AFR 1115 Epidemiology of Black Diseases**4 Q.H.**

Students are introduced to the science of epidemiology, the study of the occurrence of disease in populations. The concepts, principles, and methods of epidemiological analysis are explored, with emphasis on specific diseases occurring with greater frequency in urban and black populations, such as cardiovascular conditions, sickle cell disease, and certain occupational and environmental illnesses.

AFR 1127 African-American Literature I**4 Q.H.**

The course offers a survey of African-American literature from the period of slavery to the present, with an emphasis on literature concerning the relation between the rise of the black American and the development of African-American literature. The black experience as it is revealed in literature will be important in the discussion.

AFR 1131 African-American History I**4 Q.H.**

This survey covers the development of black America from the period of slavery through Reconstruction, with emphasis on the historical links between Africa and America and their impact on black development in the United States.

AFR 1132 African-American History II**4 Q.H.**

(Prereq. AFR 1131 or permission of instructor)

This course examines the development of black America from Reconstruction to the present, and the effects of events in the United States and world history on the development of black America. There is special emphasis on contemporary issues and how these issues can be seen through a historical perspective.

AFC 1133 History of Blacks in the Media and the Press**4 Q.H.**

The course offers a historical and visual examination of the development of the African-American experience in the American mass media and press. Contemporary and historical literature, films, and people are a part of the study and analysis with respect to history, racism, images, psychology, and social movements. Newspapers, film, television, and radio are prime focal points, and they are used to help form strategies for the future of black Americans.

AFR 1141 Education Issues and Minority Communities I**4 Q.H.**

This course focuses on some of the important issues

in today's urban elementary and secondary education systems. The analysis will look at the historical development of these issues, and students will be encouraged to think about and discuss their future significance.

AFR 1150 Black Cultural Development in the United States 4 Q.H.

The course focuses on the rise of a distinctive black culture in the United States, with emphasis on examining the premise that the black population in America has developed a cultural system that operates as a subsystem of the American cultural norm.

AFR 1151 Survey of African-American Art 4 Q.H.

Black art, like black literature, has always been an important aesthetic social statement by the African-American artist. This course offers a historical and critical examination of African-American art from the nineteenth century to the present, with special emphasis on the effects of European and African art styles on the black artist in America.

AFR 1153 Survey of African-American Music 4 Q.H.

Black music has evolved in fascinating ways over the past hundred years. Topics include the impact of African rhythm on black music, the New Orleans coalescence, regional development, ragtime, the emergence of large bands, the harmonic revolution of the '40s, bebop, the 1960s avant-garde, and subsequent developments. Some analysis of specific jazz phenomena is included. This is the same as MUS 1104.

AFR 1156 Music of Africa 4 Q.H.

The music of Africa is as varied as that continent's many linguistic and tribal identities. This course will provide a broad survey of the musical traditions of Africa with respect to their historical, social, and cultural backgrounds. Musical organization, musical practice, and aspects of style will all be discussed in light of possible contributions to contemporary African-American music. Same as MUS 1181.

AFR 1161 Economic Issues in Minority Communities 4 Q.H.

Minority lifestyles, perspectives, self-images and social position in the urban community are all affected by economic factors, especially those specific to the minority poor. Students have the opportunity to examine these issues, particularly in terms of the application of basic economic theories to the economic realities of minority communities. (VI)

AFR 1171 Survey of Contemporary Black Political Movements 4 Q.H.

The modern black political movements were inspired by a full-scale evolution of black political thought in America. Analysis of this evolution examines socio-political contests that have served as catalysts to these modern movements.

AFR 1191 Early African Civilization 4 Q.H.

This course deals with the ancient empires of Africa, especially Ghana, Songhai, Mali, Zimbabwe, the city states of East Africa, and also the Congo Kingdom. Included are Ethiopian as well as Egyptian history and the controversies surrounding their histories to 1800.

AFR 1193 Africa Today 4 Q.H.

With increasing numbers of nations striving for economic and political control in Africa, and with imperialist and colonial ideas remaining in the living memory of Africans, Africa presents a complex political and social picture to the rest of the world. This course examines some of the salient features of black art, politics, and identity in Africa.

AFR 1195 Identity and Nationalism In Africa 4 Q.H.

How have centuries of imperialism, the struggle for national unity, and the continuing problems of racism and rivalry between factions affected the present identities and nationalist movements in Africa? This course explores problems peculiar to Africa and to any group of nations struggling against colonial ideas. Tribalism and the effects of European colonial partition on African identity are discussed.

AFR 1196 The Black Experience in the Caribbean 4 Q.H.

The course offers a descriptive and interpretive analysis of the growth of the modern black community in the Caribbean. Although the focus will be on the contemporary period, the course will examine that period in the context of colonialism and slavery in the Americas. Important racial, social, political, economic, and religious issues will be addressed.

AFR 1197 Modern African Civilization 4 Q.H.

This course will cover African history and culture from 1800 to the present era. Emphasis will be placed on the relationship between Europe and Africa, the circumstances surrounding the imperialist partition of Africa, and the decolonization process. This course is the same as HST 1621. (IV)

AFR 1211 African-Americans in Science, Technology, and Medicine 4 Q.H.

The course studies the contributions that African-Americans have made to the development of science and technology in America. It examines the cultural and social factors that have encouraged blacks to work in the fields of science (biology, chemistry, physics) and technology (engineering and medicine). Certification of blacks within the American scientific community and the availability of science to the past and contemporary African-American communities are also explored. Readings, discussions, individual research topics, and interviews with black scientists, inventors/engineers, and doctors are used to develop the basic course material.

AFR 1214 Poverty and Health Care 4 Q.H.

Why do the poor fail to get good health care? The course discusses problems of the poor and will

examine the entire health care system, including Blue Cross and Blue Shield, Medicare and Medicaid, National Health Insurance, low-income barriers to health care, and future directions of medical health care.

AFR 1220 The Black Novel 4 Q.H.

The black novelist belongs to a unique literary group in the history of American fiction. Special attention is given to Chesnutt, Toomer, Wright, Ellison, and contemporary novelists, and to their different perceptions of the black experience in America.

AFR 1223 Black Poetry 4 Q.H.

Black poetry has been an important describer of the black experience in American thought through three centuries. This course will survey the black American poet from colonial times to the present. Special attention will be given to major poets and the influences that shaped their works.

AFR 1235 Black History of Boston 4 Q.H.

This course examines the social, economic, political, and educational history of Boston's black community in the nineteenth and twentieth centuries. The development of the black community and its institutions is a major focus, and students are encouraged to study the past in an attempt to understand the present and interpret the future. Research data include participant observation, oral history, interviews, and primary and secondary source materials.

AFR 1240 Contemporary Issues in Black Society 4 Q.H.

This course offers an introduction to the various issues and problems that confront black Americans, including some of the realities of the social, political, and economic problems of contemporary black experience. Students are asked to assess the validity of specific social theories in relation to the black experience.

AFR 1241 The Black Family 4 Q.H.

How does the black family function, both interpersonally and as a social unit? Anthropological and sociological theories deal with variations in family structure and the function of the black family in black society. The effects of slavery and colonization on the black family structure and functions are also explored. A side issue is a discussion of some of the differences and similarities between African, African-American, and African-Caribbean families.

AFR 1248 Race Relations in America 4 Q.H.

The course offers an examination of the interrelations of ethnic, cultural, and minority groups in the United States. Focus is on the nature of racial conflicts, discrimination, reverse discrimination, personal and institutional racism, and racial and ethnic stereotyping. Discussion considers avenues of improvement in attitude awareness and change.

AFR 1251 Survey of Black Theatre and Drama 4 Q.H.

Theatre in America has been an important reflector of the national experience, and black theatre, especially

in recent years, has served the same purpose for the black community. The course focuses on the development of black drama during the nineteenth and twentieth centuries, with emphasis on modern developments and their political and cultural significance.

AFR 1261 The Economics of Urban Poverty 4 Q.H.

Like most Americans and people from around the world, blacks migrated to central cities in America to better their economic conditions. However, unlike other migrants to urban centers, they were not assimilated into the social/economic mainstream, and there is evidence of flagrant job, housing, and educational discrimination against them even during periods of affluence. During recession or depression, their problems were compounded. Students have the opportunity to survey the above events from an economic framework.

AFR 1274 Black Political Behavior 4 Q.H.

The course provides an introductory examination of the social and psychological dynamics of black political participation. Main issues of the course include identity and political socialization and their impact on black voter turnout and partisan choices.

AFR 1280 Black Psychological Identity 4 Q.H.

So much is said of stereotyping in news, on television programs, and in literature. The shaping of the black identity over three centuries in America is a complicated and perhaps even elusive problem. This course will look at the impact of slavery, racism, war, and poverty on the evolution of the black identity in America.

AFR 1294 Third World Political Relations 4 Q.H.

This course offers a comparative regional analysis of the political systems of third world nations of Africa, Asia, Latin America, and the Caribbean. Emphasis is on development strategies; problems of development, including national identity, political socialization and participation, national defense, and urbanization; and the positions of third world nations in the international community.

AFR 1297 Caribbean History 4 Q.H.

A descriptive analysis of the development of the Caribbean from slavery to the present. The focus will be on the period 1918-1962 especially, and emphasis will be on the historical analysis of the relationship of the Caribbean with the United States and black Americans.

AFR 1300-AFR 1311 Directed Study 4 Q. H.

Directed study offers the ambitious student the opportunity to pursue a special intellectual interest not covered by the department course offerings and to work on this interest with the department faculty member of his/her choice. The faculty member will closely supervise the project and act as adviser for the duration of the quarter.

AFR 1350 Research Seminar 4 Q.H.

This course is divided into three parts, providing students the opportunity, first, to identify a substantive

area of their concern (e.g., welfare, political leadership, education) and to define a related problem in a research context; second, to be supervised in designing a research methodology most appropriate for examining the problem area; and third, to conduct extensive research, test the hypothesis, and draw conclusions based on data analysis techniques.

AFR 1355 Directed Study for Senior Thesis 4 Q.H.
(Prereq. Permission of instructor)

The senior thesis is required of all African-American Studies majors; it offers students the opportunity to prepare a professional research paper under the close supervision of a scholar interested in students' particular research areas.

AFR 1360 Field Research Seminar 4 Q.H.
(Prereq. Permission of instructor)

Seniors have the opportunity to work with a faculty member on an individual basis, while carrying out a particular research project off-campus. Students are required to refine and polish a topic and outline for the senior thesis.

AFR 1380 Junior-Senior Honors Program 4 Q.H.
For details contact the Honors Office, 183 Holmes.

AFR 1401 History of East Africa 4 Q.H.

The first section of the course deals with the pre-colonial period and the problems of the partition of Africa. The second section focuses on the classical colonial period and the transformations of colonial policy after World War II, with particular emphasis on the ambiguity of decolonization and those features of the colonial system that seem to have become a part of the East African social and political environment.

AFR 1403 History of West Africa 4 Q.H.

The history of West Africa has included the struggle for internal unity, economic development, and social justice. The Pan-Africanist ideology, W.E.B. DuBois's writings, African socialism, and the consolidation of power and leadership are some of the topical objectives in this study of African liberation, particularly the rise of West Africa.

AFR 1405 History of South Africa 4 Q.H.
(Prereq. AFR 1491 or permission of instructor)

Initial attention is directed toward pre-colonial South Africa and the conflict between Africans and the Dutch and English settlers. The course then focuses on the formation and transformation of colonial policy after World War II, with particular emphasis on racism, neo-colonialism, liberation movements, and international involvement in the apartheid system. (VI)

AFR 1421 African-American Literature II 4 Q.H.
(Prereq. AFR 1121 or permission of instructor)

This course continues the survey of African-American literature; its primary focus, however, is on principal writers and their major themes.

AFR 1431 Analysis of the Slavery System in America 4 Q.H.

This course attempts a comprehensive survey of the realities of the slavery system in America, with focus

on the impact of slavery on blacks as well as on the society that perpetrated the system: Examination of slave narratives and other historical documents will provide insights into the origin of the slavery system and the way it functioned until the Emancipation Proclamation.

AFR 1432 Analysis of Comparative Slavery 4 Q.H.

Slavery has had major psychological effects on the shaping of the black American experience, as well as on the experience of blacks throughout the world. An analysis of the sociological implications of slavery on group interrelations, social norms, and cultural aberrations covers several national versions of the slave system in Africa, Europe, the Caribbean, and North and South America.

AFR 1440 Racial Integration and Its Impact on Education 4 Q.H.

This course offers an examination of the historical struggle for desegregation. This course analyzes current urban issues in racial integration and some of the projected effects of integration.

AFR 1446 The Black Elderly in America 4 Q.H.

This course will survey the demographic characteristics of black elderly Americans compared with those characteristics of white elderly. These statistics include age, sex, educational levels, income levels, occupations, sources of income, as well as the study and comparison of certain social characteristics of black and white elderly. These will include the use of their time relationships with primary and extended family groups, and their own view of the history of their lives as black people in America. They will also give students a perspective of what they envision the future of blacks will be in the social and economic life of America. Students will be expected to devise a questionnaire, interview senior citizens, and write a paper based on this information.

AFR 1448 Religion in Black American Society 4 Q.H.

Black life in America cannot be fully understood without a sense of the importance of religion in the community. This course looks at the impact of religion on social structures, group behaviors, moral codes, and belief patterns in black society. Topics include the church as a social organizer, the role of the black minister in the community, and the variety of black denominations in urban and rural areas.

AFR 1449 Junior-Senior Honors 4 Q.H.
For details contact the Honors Office, 183 Holmes.

AFR 1451 Seminar: Creative Expression in Blues and Jazz 4 Q.H.

Blues and jazz have been among the most far-reaching and original artistic expressions of blacks in America. The course touches on possible African sources of inspiration for the musical literature of blues and jazz; a more important focus, however, is on blues and jazz as a reflection of African-American life and on the impact these musical forms have had on black self-image and position in American culture.

AFR 1470 Black Political Thought 4 Q.H.

How do the black people as a unit view the American political system and black people's chances of improving their lot in this country? This course examines black opinions, from the radical to the ultra-conservative, of the United States political system. The focus is historical in context and will address notions of political socialization and the development of black political ideologies.

AFR 1471 Seminar: Black Political Leadership

(Prereq. AFR 1171 or consent of instructor) **4 Q.H.**

This course will focus on several prominent black political leaders in the twentieth century, with an examination of the factors and social contexts which contributed to or thwarted their leadership. Students will be expected to conduct extensive research on a particular black political leader and present a critical analysis of the impact of that political leader on the black community.

AFR 1475 Public Policy Analysis 4 Q.H.

The course analyzes the dynamics of the public policy formation process at the local, national, and international levels, with particular attention to the implications of public policy for minority groups. Emphasis is placed on a critique of the policy maker's role and power in the socio-economic setting.

AFR 1480 Black Man/Black Woman 4 Q.H.

Sociological and anthropological methods are used to examine black male and female personality development as well as the development of black male and female behavior, self-image, sexual roles, and behavior within both the black and the white communities.

AFR 1491 African Civilization II 4 Q.H.

(Prereq. AFR 1191 or permission of instructor)

This course on African civilization covers the period from 1800 to the present era. Emphasis will be placed on the relation between Europe and Africa, the circumstances surrounding the imperialist partition of Africa, and the decolonization process.

INT 1201 An Analysis of American Racism 4 Q.H.

This seminar in contemporary aspects of racism in America discusses the cycle by which racism in our institutions helps form our attitudes and the manner in which our attitudes, in turn, shape our institutions. Emphasis is on the practical, day-to-day aspects of racism, rather than the theoretical and historical.

The following courses may be of interest to the student wishing to concentrate in African-American Studies. Descriptions for these courses may be found in the appropriate department listing.

PHL 1100 Introduction to Philosophy**PHL 1140 Social and Political Philosophy****PHL 1243 Existentialism****PHL 1335 Moral Philosophy****POL 1303 Political Behavior****POL 1317 Law and Society****POL 1320 Political Parties and Pressure Groups****POL 1342 Crisis and Conflict in Black Africa****POL 1354 The Politics and Policies of Developing Nations****POL 1360 The Politics of Revolution and Change****POL 1362 Civil Liberties****POL 1370 Political Theory****POL 1378 Contemporary Political Thought****POL 1386 International Law****SOA 1345 Urban Anthropology****SOA 1355 Political Anthropology****SOA 1360 Economic Anthropology****SOC 1147 Urban Society****SOC 1170 Race and Ethnic Relations****SOC 1310 Class, Power, and Social Change**

American Sign Language

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American Sign Language courses are an integral part of two undergraduate degree programs: the human services specialization in deaf studies and the linguistics major. For more information, contact the American Sign Language Program, 276 Holmes Hall. See also human services and linguistics majors.

ASL courses do not satisfy the College of Arts and Sciences modern foreign language requirement for the BA, but they do satisfy humanities requirements of many major programs. Many students take them as free electives for personal or professional enrichment.

ASL 1101 American Sign Language I 4 Q.H.

An introduction to American Sign Language and Deaf culture, this course focuses on frequently used signs,

basic rules of grammar, nonmanual aspects of ASL, and some cultural features of the Deaf Community.

ASL 1102 American Sign Language II 4 Q.H.

(Prereq. ASL 1101 or permission of instructor)

A continuation of basic language and culture study, this course offers an opportunity to build receptive and expressive sign vocabulary. Study includes use of the signing space; further use of nonmanual components, including facial expression and body postures. Introduction to fingerspelling.

ASL 1201 Intermediate American Sign Language I 4 Q.H.

(Prereq. ASL 1102 or permission of instructor)

This course emphasizes further development of receptive and expressive skills, fingerspelling, vocabulary building, grammatical structures; encourages more creative use of expression, classifiers, body postures, and the signing space; introduces regional and ethnic sign variations and political and educational institutions of the Deaf Community.

ASL 1202 Intermediate American Sign Language II 4 Q.H.

(Prereq. ASL 1201 or permission of instructor)

The course consists of intensive practice involving expressive and receptive skills in story telling and dialogue; introduction to language forms used in ASL poetry and to the features of culture as they are displayed in art and the theatre.

ASL 1211 Deaf Culture 4 Q.H.

(Prereq. ASL 1101)

Course focuses on the status of Deaf people as a linguistic and cultural minority group. Topics include the role of American Sign Language in the Deaf Community; educational and historical perspectives on deafness; and sociological and cultural make-up of the Deaf Community.

ASL 1212 Deaf History 4 Q.H.

A survey of the history of Deaf people in the Western world, with emphasis on the American Deaf Community, their language, education, and relationship to hearing society.

ASL 1301 Advanced American Sign Language Proficiency 4 Q.H.

Emphasis is on further vocabulary building and mastery of fine points of grammar through rigorous receptive and expressive language activities. Included are student-led discussions, debates, and reports on topics in Deaf culture, society, and current affairs.

ASL 1401 American Sign Language Literature 4 Q.H.

(Prereq. ASL 1202)

Various genres of American Sign Language will be read and discussed in ASL. This course will concen-

trate on the work of current, recognized narrators in both literary and face-to-face storytelling traditions, and will also include selected autobiographical sketches, lectures, stories, and letters from the early 1900s by such historical figures as Clerc, Veditz, E.M. Gallaudet, and others. A videotaped research essay in ASL will be required at the end of the course.

ASL 1501 Sign Language Interpreting I 4 Q.H.

(Prereq. ASL 1301 or permission of instructor)

This is the first of a three-course sequence involving the theoretical and practical aspects of simultaneous interpretation of English into sign language and vice versa. Through lectures, discussions, and role playing, students are introduced to ethics, definitions, client-interpreter relationships, linguistic considerations, mechanics, and special considerations for various interpreting situations.

ASL 1502 Sign Language Interpreting II 4 Q.H.

(Prereq. ASL 1501 or consent of instructor)

Lectures, discussions, and role playing emphasize topics that include ethics, roles, fees, and Registry of Interpreters for the Deaf (R.I.D.) certification procedure. Laboratory work focuses on increasing skills in simultaneously interpreting English to sign language and vice versa.

ASL 1503 Sign Language Interpreting III 4 Q.H.

(Prereq. ASL 1502 or consent of instructor)

This course is designed for students who have completed the equivalent of Sign Language Interpreting I and II and wish to upgrade their skills. Laboratory work focuses on interpreting ASL into English and vice versa, and transliterating spoken English into manual English.

ASL 1504 Methods and Materials in American Sign Language Instruction 4 Q.H.

(Prereq. ASL 1202, PSY 1363)

This course offers a study of the theories of second-language learning and teaching as applied to ASL, and existing approaches to ASL instruction, with focus on materials, activity selection, utilization and selection of instructional media, and evaluation techniques.

ASL 1801, ASL 1802, ASL 1803, ASL 1804, ASL 1805 Directed Studies (each) 4 Q.H.

Directed Studies offer students an opportunity to go beyond course work of the regular curriculum or to pursue an individual learning project. May take the form of research, practicum, or language development activity.

Art and Architecture

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Roman numerals at the end of course descriptions refer to *Core Curriculum* categories listed on page 1-2.

ART 1100 History of Art to 1400 4 Q.H.

The course provides a survey of Western art from prehistoric times to the Renaissance.

ART 1101 History of Art since 1400 4 Q.H.

The course provides a survey of Western art from the Renaissance to the twentieth century.

ART 1106 Introduction to Art 4 Q.H.

The course offers a basic introduction to the characteristics of the visual arts, including painting, sculpture, graphic arts, and architecture. Various examples of works of art are studied as an introduction to style and technique. Course includes visits to museum collections and contemporary art galleries. (II)

ART 1111 Introduction to Architecture 4 Q.H.

The course offers a survey of the stylistic characteristics of architecture from ancient times to the present.

ART 1113 Architecture and the City 4 Q.H.

This course provides a selective examination of Western architecture in the context of the urban environments that produced it. Special attention is paid to the cultural and social forces which shaped this architecture of the cities.

ART 1115 Art and Society 4 Q.H.

The course offers an examination of the way in which societal forces and political ideologies are expressed in the visual arts, especially in painting and architecture. The course combines a broad overview of a few significant historical periods with a more focused concentration on the past two hundred years.

ART 1124 Basic Drawing 4 Q.H.

The focus of the course is on basic drawing in pen and ink, pencil, charcoal, brush, and related media. Course includes fundamentals of form, volume, and texture in drawing.

ART 1127 Basic Painting 4 Q.H.

This is an introductory studio course in the fundamental techniques of painting. Formal problems in the study of color, light, space systems, form, and composition establish the foundation for more individual creative expression. Critiques and slide lectures are used as needed.

ART 1130 Foundations of Visual Design 4 Q.H.

An introductory studio course clarifying basic principles, language, and concepts inherent in visual language systems. Utilizing both two- and three-dimensional media including photography, students will explore such fundamental concepts as composition, dimensional relationships, effects of color, pictorial and literal space and form, repetition, structure,

figure/ground relationships, balance and unity. By working out abstract concepts in concrete hands-on studio projects, students will gain valuable insights into fundamental visual ideas that relate all visual art forms.

ART 1132 Graphic Design I 4 Q.H.

An introductory studio course in the fundamental principles of graphic design. Assigned projects and lectures in design elements and their application include: the creative use of color, value, line, shape and form, layout, layout techniques and tools, typography, design concepts and symbols, and the correlation of graphic expression and organization with copy content in communicating ideas.

ART 1138 Introduction to Printmaking 4 Q.H.

A hands-on course dealing with the methods and techniques of etching, drypoint, and calligraphy. Students will experiment with the processes of line etching, aquatint, soft/hard ground and paper relief prints as they develop an image. Slide presentations of prints will be shown each week.

ART 1150 Introduction to Architectural Design 4 Q.H.

An introduction to fundamental design principles and their application to the built environment. Lectures, two- and three-dimensional design projects, and field trips.

ART 1160 Basic Photography I 4 Q.H.*

The course is intended to acquaint the beginning student with the use of the camera, the negative, and the print. Weekly shooting assignments, demonstrations, and hands-on lab experience are part of this active, primary-level course.

ART 1170 Filmmaking Workshop 4 Q.H.

An introductory course in the creative use of the film medium. Emphasis will be placed on weekly lab assignments designed to develop skills in the fundamental techniques of filmmaking. A final film project expressing an original idea in film form will be required of each student. Film screenings, lectures, and critiques. Equipment will be provided by the department.

ART 1171 Animation Workshop 4 Q.H.

An introductory course in the creative possibilities of the animated film. Weekly lab assignments and a final project will acquaint students with various animation techniques and the creative advantages of each. Film screenings, lectures, and critiques. Equipment will be provided by the department.

*Lab fee required.

ART 1200 Ancient Art and Architecture 4 Q.H.

This course offers an overview of the painting, sculpture, and architecture of Ancient Egypt, Mesopotamia, Greece, and Rome, with special emphasis on the historical forces that shaped them.

ART 1203 Medieval Art and Architecture 4 Q.H.

The course focuses on Romanesque and Gothic art and architecture from the tenth to the fifteenth centuries.

ART 1204 Renaissance Art and Architecture 4 Q.H.

The course focuses on Italian painting, sculpture, and architecture of the fifteenth and sixteenth centuries, with special reference to the historical and social forces that shaped them.

ART 1210 French Painting 4 Q.H.

The course examines French painting of the nineteenth century, focusing on romanticism, realism, impressionism, and their cultural implications.

ART 1213 Modern Painting 4 Q.H.

The course provides a survey of twentieth-century painting, including major schools such as impressionism, cubism, surrealism, and expressionism. Course includes visits to museum collections and contemporary art galleries.

ART 1217 History of Marine Painting 4 Q.H.

A study of the image of the sea as used by various painters. The work of such artists as Turner, Delacroix, Monet, Rembrandt, and many others will be examined stylistically within a historical context.

ART 1220 American Sculpture and Painting 4 Q.H.

A survey of major developments in American sculpture and painting from colonial times to the present. This course emphasizes stylistic considerations and influences affecting the development of these art forms.

ART 1223 American Architecture 4 Q.H.

This course provides a survey of major developments in American architecture from colonial times to the present, with emphasis on stylistic developments and influences affecting architectural directions in America.

ART 1225 Technology, Architecture, and the City 4 Q.H.

The course examines the role technology and architecture played in shaping the built environment of the American city, with special emphasis on Chicago, New York, and Boston. The course also investigates the effects of physical planning, especially urban renewal and the recycling of older buildings.

ART 1228 Contemporary Architecture and the City 4 Q.H.

The course is a study of the great figures and chief

movements of American and European architecture and city planning of the twentieth century.

ART 1230 History of Photography 4 Q.H.

The course offers a study of the development of photography from the early nineteenth century to the present.

ART 1233 Contemporary Directions in Photography 4 Q.H.

A slide/lecture course designed to acquaint the student with trends in twentieth-century photography. Photojournalism, documentary, commercial, and creative photography will be examined closely in relation to other communication media.

ART 1235 History of Film 4 Q.H.*

An introductory historical survey of the development of film as an art form from the late nineteenth-century handcolored silent films to the contemporary national movements. Lectures, screenings, and discussions.

ART 1236 The American Film 4 Q.H.*

An historical survey of the unique rise of the American film and an exploration of its influence on a burgeoning new art form. Key films representing major aesthetic or technical developments from the late nineteenth century to the present will be screened weekly and discussed. Lectures, screenings, and discussions.

ART 1237 Contemporary Directions in Cinema 4 Q.H.*

A comparative study of major international film movements from World War II to the present. Selected films by representative contemporary directors. Lectures, screenings, and discussions.

ART 1238 Documentary Film 4 Q.H.*

A study of the aesthetics and tradition of the documentary film, with a major emphasis on contemporary directions.

ART 1240 History of Graphic Design 4 Q.H.

An historical survey of graphic design from the mid-nineteenth century to the present. The course will focus on the evolutionary development of graphic design, its special nature and function, major periods and trends, the historical influence of the fine arts, and contemporary directions in design evident today. Slide lectures and discussions.

ART 1243 Graphic Design II 4 Q.H.

A continuation and reinforcement of the fundamental practices and principles of good design with a special emphasis on developing overall design concepts. Students will explore the inherent problems in designing public graphic systems, exhibit graphics, corporate and institutional graphics, promotional and technical literature graphics, and develop skills in effective problem-solving techniques and concept development methodology.

* Lab fee required.

ART 1250 Color Theory and Practice 4 Q.H.

A project-oriented course exploring the nature and properties of color, major color theories, color harmonies, the spatial characteristics of color, color and light, the psychology of color, color symbolism, color orchestration, and the pragmatic creative application of color in image-making generally, and design specifically.

ART 1254 Intermediate Drawing 4 Q.H.

The main focus of this course is to heighten the student's understanding of spatial awareness, scale movement, and expression. Students will be asked to create unusual environmental situations for their figurative compositions. A variety of media will be used, including wash, pen and ink, watercolor, chalk, charcoal, and pencil.

ART 1261 Basic Photography II 4 Q.H.*

(Prereq. ART 1160 or equiv.)

A continuation of ART 1160 with more emphasis on combining personal aesthetic choices with refining darkroom skills. A final portfolio at the end of the course as well as weekly shooting assignments are required.

ART 1263 Introduction to Color Photography 4 Q.H.*

An introduction to shooting, processing, and printing color negative films. Lecture will cover basic color theory in relationship to photography as well as contemporary color photographic processes. Working with color negative films, students will get hands-on experience in the C-41 process for developing film and the EP-2 process for printing color negatives. Emphasis in the weekly assignments will be on solving technical and aesthetic problems inherent in dealing with color negative materials. The hands-on lab will allow the student to produce the final project. Color chemistry and facilities are provided.

ART 1271 Animation Workshop 4 Q.H.

An introductory course in the creative possibilities of the animated film. Weekly lab assignments and a final project will acquaint students with various animation techniques and the creative advantages of each. Film screenings, lectures, and critiques. Equipment supplied by the department.

ART 1310 Seminar in Modern Art and Architecture 4 Q.H.

(Prereq. One course in post-Renaissance art history or permission.)

The course explores selected topics in modern art and/or architecture.

ART 1320 Late Nineteenth-Century American Architecture 4 Q.H.

(Prereq. ART 220 or ART 223, or permission.)

The course offers a study of the "stick and shingle" architectural styles, as well as more general developments. Introductory lectures are followed by student presentations on selected topics.

ART 1363 Intermediate Photography Workshop 4 Q.H.*

(Prereq. ART 1261 or equiv.)

Through close interaction with the teacher, students are asked to refine their technical skills and to make meaningful decisions about their relation to the world around them through the use of black and white photography. Alternative processes and large formats as well as frequent slide presentations of contemporary photography will combine together to form a base for a course stressing individual direction and a qualitative approach to substantive photography.

ART 1800, ART 1801, ART 1802 Directed Study (each) 4 Q.H.

These courses offer independent work under the direction of members of the Department on a chosen topic. Limited to qualified junior and senior students majoring in art, with approval of the department.

ART 1810, ART 1811, ART 1812 Junior-Senior Honors Program (each) 4 Q.H.

For details contact the Honors Office, 183 Holmes.

INT 1100 Introduction to Art, Drama, and Music 4 Q.H.

This interdisciplinary course offers an integrated approach to three related disciplines: art, drama, and music. Basic vocabulary and analytical techniques are established for each discipline, emphasizing such common elements as color, line, rhythm, texture, and form. Representative works from various periods are examined in the context of the cultures that produced them, and lectures focus on parallels and contrasts among the three disciplines' manifestations of specific trends, principles, and ideals. Lectures, readings, and listening assignments are supplemented by visits to art galleries and attendance at concerts and theatrical performances. (II)

* Lab fee required.

Biology

For specific information about terms during which courses are offered, students should inquire at the main office of the Biology Department, 403 Richards Hall. This is especially the case for students wishing to carry a minor in biology, since some courses acceptable only for a minor do not appear in the quarterly Elective Course Selection booklets. Students should note that courses are presented by category and are not listed in a single numerical sequence.

Students should be aware that two (or more) courses with substantially the same content may not be counted toward quantitative graduation requirements. Some instances of overlap between biology courses are noted in the individual course descriptions below. However, in addition, certain combinations of courses (e.g., BIO 1150-1151 and BIO 1253, -54, -55) may cover essentially the same material, and certain courses in other departments of the University may duplicate certain biology courses. If a student is not sure whether particular courses overlap, the student should seek advice from departmental advisers or the Arts and Sciences Dean's Office.

Roman numerals at the end of course descriptions refer to *Core Curriculum* categories listed on pages 1-2.

The following courses are primarily for students with little or no background in college science and mathematics. These courses are not open to biology majors.

BIO 1110 Organic Evolution 4 Q.H.
(Not open to biology majors)
The course focuses on the major features of organic evolution, with emphasis on vertebrate evolution, genetics, and physical influences.

BIO 1111 Environment and Man 4 Q.H.
(Not open to biology majors)
The course offers an ecological analysis of man's inter-reaction with other organisms. The necessary foundation of biological principles is presented.

BIO 1150 Human Anatomy and Physiology I 5 Q.H.*
(Not open to biology majors)
The course focuses on cellular and tissue structure and function, followed by anatomical terminology. Topics include histology, anatomy, and physiology of bones, muscles, blood, and nervous systems. The laboratory includes a study of human bones, cat dissection, and related histology.

BIO 1151 Human Anatomy and Physiology II 5 Q.H.*
(Prereq. BIO 1150)
(Not open to biology majors)
The course covers anatomy and physiology of the respiratory, digestive, urogenital, and circulatory systems; physiology of endocrine system; a brief exploration of the anatomy and physiology of eye and ear. The laboratory includes studies of muscle and nerve physiology, blood physiology and histology, and physiology of respiration.

BIO 1170 Marine Biology 4 Q.H.
(Not open to biology majors)
The course provides an introduction to marine life with an emphasis on that of New England shores, and includes concepts of life cycles, adaptation of organisms, productivity, disturbance effects due to pollution and/or man and how they interrelate.

BIO 1181 The Human Organism 4 Q.H.*
(Not open to biology majors)
This course, designed for nonscience majors, provides an introduction to the structure and function of the human body. Emphasis is on the principles of biological and physical science as they relate to life processes in health and disease. Laboratory experiments explore the workings of the students' own biological systems rather than those of other animals.

BIO 1187 Biology of Human Reproduction 4 Q.H.
(Not open to biology majors)
The course covers structure and function of male and female reproductive systems; factors affecting sexual development, fertility, and reproductive behavior in the human species; physiology of coitus, fertilization, pregnancy, birth, and lactation; methods of controlling fertility.

The following courses are primarily for students majoring in science- or health-related professions or other majors (nonbiology) with equivalent background in college science and mathematics. These courses are not open to biology majors.

BIO 1112 Ecological Principles 3 Q.H.
(Prereq. Nonbiology science majors or engineering majors)
Identical to BIO 1211, but without lab. Not open to biology majors. (II)

BIO 1120 Basic Microbiology 4 Q.H.*
(Prereq. BIO 1140, or permission of instructor; not open to biology majors)
Microbial life, emphasizing morphological characteristics, physiological activities, and disease production. Laboratory. (Overlaps BIO 1320, BIO 1121, and BIO 1221.)

BIO 1121 Introductory Microbiology 3 Q.H.
(Not open to biology majors)
Same as BIO 1120, but without laboratory.

* Lab fee required.

BIO 1140 Basic Animal Biology I 4 Q.H.*
(Not open to biology majors)

The course covers principles of biology; universal properties and processes of living organisms as exemplified by the cell and its activities; inheritance evolution; and environmental relationships. Laboratory. (Overlaps BIO 1106.)

BIO 1141 Basic Animal Biology II 4 Q.H.*
(Prereq. BIO 1140; not open to biology majors)

The course offers systematic, comparative study of the structure and functions of animals. Diversity of animals is considered from the standpoint of evolutionary adaptation. Laboratory. (Overlaps BIO 1107.)

BIO 1221 General Microbiology 3 Q.H.

(Prereq. Permission of instructor; or CHM 1265, BIO 1260, and BIO 1261; required courses may be taken concurrently)

Same as BIO 1320, but without laboratory. Not applicable for the biology major or graduate credit.

BIO 1255 Human Anatomy 4 Q.H.*

(Not open to biology majors)

The course focuses on the structure and development of the human body. Laboratory.

Courses primarily for biology majors or for other students with equivalent background in college science and mathematics. Freshmen intending to major in biology should take the sequence BIO 1103 to BIO 1105.

BIO 1103 Principles of Biology I 5 Q.H.*

An introduction to the basic principles of biology, the course endeavors to provide an information base for the remainder of the biology core. Topics include scientific method; cell metabolism; growth; development; elementary genetics; nutrition; photosynthesis; and respiration. Laboratory.

BIO 1104 Principles of Biology II 5 Q.H.*

(Prereq. BIO 1103)

Topics include structure and function of vertebrate animals, structure and general physiology of animal cells, and evolution of adaptive diversity among invertebrate animals. Laboratory.

BIO 1105 Principles of Biology III 5 Q.H.*

(Prereq. BIO 1103 and BIO 1104)

The course covers discussion of the molecular mechanisms of microbial and plant life; introduction to the various systems of plants and their role in the biological world, illustrated with laboratory experiments and dissection.

BIO 1106 General Biology 4 Q.H.*

The course focuses on universal properties and processes of living organisms. Topics include cellular composition and cellular control, the evolutionary process, environmental relationships. Laboratory. (Normally not for freshman biology majors. Overlaps BIO 1140.)

BIO 1107 Animal Biology 4 Q.H.*

(Prereq. BIO 1106)

The course offers a systematic comparative study of

the structure and functions of animals. Diversity of animals is considered from the standpoint of evolutionary adaptation. Laboratory. (Normally not for freshman biology majors. Overlaps BIO 1141.)

BIO 1133 Plant Biology 4 Q.H.*

(Prereq. BIO 1106-BIO 1107 or BIO 1103-BIO 1105)

The course offers an introduction to the structure of plant cells, structure and function of roots, stems, and leaves of flowering plants; survey of the major groups in the plant kingdom, including their morphology, reproductive biology, and economic importance. Laboratory.

BIO 1211 Environmental and Population Biology 4 Q.H.*

(Prereq. BIO 1107-BIO 1133 or BIO 1103-BIO 1105)

The course offers detailed consideration of the physico-chemical factors influencing and influenced by organisms. The course covers interactions among individual organisms and among species; change of species by genetic natural selection; development of communities and function of ecosystems. Laboratory. (II)

BIO 1253 Human Physiology I 4 Q.H.*

(Prereq. BIO 1106 and BIO 1107 or BIO 1103-1105)

The course offers study of the physiology of excitable cells and tissues: nerve and muscle synapses, muscular contraction, neuromuscular reflexes, autonomic nervous system, endocrinology, sensory physiology, and higher nervous function. Laboratory.

BIO 1254 Human Physiology II 4 Q.H.*

(Prereq. BIO 1253)

The course offers study of respiration and circulation: fluids, the heart, cardiovascular regulatory mechanisms and metabolism, gastrointestinal function, renal function. Laboratory.

BIO 1260 Genetics and Development Biology 4 Q.H.*

(Prereq. BIO 1107-BIO 1133 or BIO 1103-BIO 1105 and CHM 1264)

Course focuses on elaboration of the classic laws of heredity, cytogenetics, molecular basis of heredity, and selected examples of the development of form and function. Laboratory.

BIO 1261 Cell Physiology and Biochemistry 4 Q.H.*

(Prereq. BIO 1107 or BIO 1103-BIO 1105 and BIO 1260, CHM 1265, and CHM 1221)

Topics include basic chemical and physical enzyme kinetics; processes of cells related to their fine structure; oxidative and intermediary metabolism; photosynthesis, membrane phenomena; chemical and physical processes of prokaryotic and eukaryotic cells. Laboratory.

BIO 1270 Diving Research Methods 4 Q.H.*

(Prereq. SCUBA Certification)

A field-oriented course designed to introduce students to techniques in the study, ecology, and physiology of subtidal marine organisms. The course will

* Lab fee required.

consist of the description of underwater research methods, their appropriate applications, and their implementation during field exercises under water. Topics to be covered include diving physiology, sampling design, experimental design, statistical analysis of data, population censusing methods, under water measurements of hydrodynamics, *in situ* respirometry, underwater telemetry, underwater photography, and the use of underwater habitats and submersibles in research.

BIO 1311 Evolution 4 Q.H.*
(Prereq. BIO 1107 or BIO 1103-BIO 1105 and BIO 1260)

This is a basic evolutionary course for biology majors and graduate students offering a survey of evolutionary history, evidence, mechanisms, and theories. Topics of current interest in evolution are emphasized.

BIO 1320 General Microbiology 5 Q.H.*
(Prereq. Permission of instructor; or CHM 1265, BIO 1260, or BIO 1261; required courses may be taken concurrently)

The course provides morphological, ecological, and biochemical consideration of representative groups of bacteria; introduction to virology and microbial genetics; host-parasite relationships, including basic immunological considerations; prokaryotes of medical significance; physical and chemical controls of microbial growth. Laboratory. (Overlaps BIO 1120 and BIO 1221.)

BIO 1328 The Microbial World 4 Q.H.*
(Prereq. BIO 1211 and CHM 1264)

The course offers study of the position, structure, and function of microorganisms in the natural world, and their utilization by humans from the perspective of their major physiological properties. Laboratory.

BIO 1329 Marine and Fresh Water Microbiology I 2 Q.H.*
(Prereq. BIO 1320)

The course examines methodological approaches to the study of the aquatic environment. Shipboard sampling and relevant field trips augment laboratory studies.

BIO 1330 Marine Botany 4 Q.H.*
Subjects covered include taxonomy of the major groups of marine plants, primarily algae; their ecological and reproductive strategies and their economic importance; and their roles in diverse marine communities. Mandatory field trips in addition to laboratory studies.

BIO 1341 Vertebrate Zoology 4 Q.H.*
(Prereq. BIO 1107 or BIO 1105 and BIO 1211)
Lectures emphasize the systematics, natural history, zoogeography, and behavior of all classes of vertebrates. The laboratory consists of identification of preserved specimens and mandatory field and museum trips.

BIO 1347 Embryology 5 Q.H.*
(Prereq. BIO 1107 or BIO 1105 and BIO 1260)
Topics include gametogenesis, fertilization, cleavage, gastrulation, induction, organogenesis, and metamorphosis in vertebrates. Emphasis is on frog, chick, and pig in the laboratory.

BIO 1348 Animal Histology 4 Q.H.*
(Prereq. BIO 1131)
The course offers microscopic study of fundamental types of animal tissues. Laboratory.

BIO 1351 Comparative Vertebrate Anatomy 5 Q.H.*
(Prereq. BIO 1107 or BIO 1105)
The course focuses on morphology and phylogeny of the vertebrates; laboratory studies on taxonomy of the group and specific morphology of the dogfish shark, the mud puppy, the alligator, and the cat.

BIO 1370 Marine Invertebrate Zoology 5 Q.H.*
(Prereq. BIO 1107 or BIO 1105)
Topics include functional morphology, systematics, ecology, and phylogenetic relationships of the major invertebrate phyla. Emphasis in laboratory is on utilization of living marine forms, with dissection of representative organisms.

BIO 1371 Biological Oceanography 4 Q.H.*
(Prereq. BIO 1104, 1107, or 1141 or equivalent)
A lecture and laboratory course encompassing the principles of biological oceanography. The topics include physical and chemical aspects of the ocean environment, the distribution, production, and interactions of marine planktonic organisms, and ecosystem characteristics of specific oceanographic environments. Special emphasis is given to participation in sampling and analysis using current instrumentation and methods.

BIO 1401 Histological Technique 3 Q.H.*
(Prereq. BIO 1107 or BIO 1105 and BIO 1261)
The course provides instruction in general methods of tissue preparation for purposes of microscopic study; preparation of solutions and stains; the microtome and its operation, together with specific directions for fixation, clearing, hardening, embedding, section-cutting, and staining tissues. Laboratory.

BIO 1411 Tropical Terrestrial Ecosystems 3 Q.H.*
(Prereq. two years of college biology)
A field and lecture course to introduce students to the plants, animals, and ecosystems of terrestrial Jamaica.

BIO 1412 Benthic Marine Ecology 4 Q.H.*
(Prereq. BIO 1211; BIO 1341 recommended)
This course involves a study of the interactions among bottom-dwelling invertebrates, fish, and plants and their environment. Quantitative field methods and new developments in ecological theory will be applied to examinations of the rocky intertidal zone, soft sediment areas, salt marshes, and the rocky subtidal zone.

* Lab fee required.

- BIO 1420 Microbial Physiology** 4 Q.H.*
(Prereq. BIO 1320 or equiv.)
The course focuses on structure and function of the bacterial cell, with emphasis on its general properties as well as on the physical and chemical factors that influence it. Laboratory.
- BIO 1421 Medical Virology** 4 Q.H.*
(Prereq. BIO 1320)
The course examines fundamental characteristics of animal viruses with emphasis on pathogenesis, clinical pathology, and epidemiology of the common viral diseases, including the tumor viruses and the slow viral diseases. Laboratory sessions focus on methods of working with animals, eggs, and cell cultures in isolating, cultivating, and identifying viruses.
- BIO 1427 Medical Microbiology** 4 Q.H.*
(Prereq. BIO 1320 or equiv.)
Topics include host parasite interactions: virulence, toxins, natural flora, immunological responses; characteristics of the common bacterial, rickettsial, and protozoal infections in humans; epidemiology, pathology, vaccines, and chemotherapy.
- BIO 1429 Marine and Fresh Water Microbiology II** 2 Q.H.*
(Prereq. BIO 1320)
The course focuses on characterization and differentiation of aquatic micro-organisms. Topics include microbial associations in marine, estuarine, and fresh water habitats. Morphology, physiology, and ecology are stressed.
- BIO 1430 Plant Physiology** 4 Q.H.*
(Prereq. BIO 1133 or BIO 1105 and CHM 1265)
The course focuses on the physiology and biochemistry of plants as a whole and at the cellular and organ levels. Considerations of mineral and nutrition, photosynthesis, hormones, growth, and development are included. Attendance at a weekly four-hour lab, as well as preparation of a paper based on the research literature, is required.
- BIO 1431 Lower Plants** 4 Q.H.*
(Prereq. BIO 1133 or BIO 1105)
The course offers study of nonvascular plants (algae, fungi, lichens, mosses, and liverworts), including their morphology, ultrastructure, ecology, life cycles, reproductive strategies, and economic uses. Laboratory.
- BIO 1432 Higher Plants** 4 Q.H.*
(Prereq. BIO 1133 or BIO 1105))
The course offers study of vascular plants (club mosses, ferns, gymnosperms, and angiosperms). Origin, ecology, development, structure, paleobotanical evidence, reproductive strategies, and economic uses. Field trips included. Laboratory.
- BIO 1437 Structural Botany** 4 Q.H.*
(Prereq. BIO 1133 or BIO 1105)
The course focuses on comparative developmental anatomy of seed plants. Laboratory.
- BIO 1438 Flora of New England** 4 Q.H.*
(Prereq. BIO 1133 or BIO 1105)
The course provides a study of local vascular flora

(ferns, gymnosperms, and angiosperms), with emphasis on recognition and appreciation of plant family characteristics. Preparation of herbarium specimens is presented. Field trip attendance is required. Laboratory.

- BIO 1439 Economic Botany** 4 Q.H.*
(Prereq. BIO 1133, or BIO 1103-BIO 1105)
The course offers an in-depth study of the association of plants and men. Subjects include food, beverage, drug, fiber, and medicinal products and crops, both historically and in present-day usage. Laboratory includes making of several plant products (paper, dried fruit, beer, etc.) as well as tours of a brewery, wholesale grocers, ethnic markets, sugar factory, and other places as time permits.
- BIO 1440 Advanced Invertebrate Zoology** 4 Q.H.*
(Prereq. Two years of college biology)
A lecture, field, and laboratory course that concentrates on one or two phyla. Subject varies from year to year, depending upon expertise of available faculty. An individual research project is required.
- BIO 1441 Parasitology** 4 Q.H.*
(Prereq. BIO 1107 or BIO 1105 and BIO 1261)
The course focuses on symbiotic relationships of protozoans, mesozoans, flatworms, nematodes, acanthocephalans, and arthropodes. Laboratory.
- BIO 1442 Vertebrate Paleontology** 4 Q.H.*
(Prereq. BIO 1107 or BIO 1105, BIO 1211, BIO 1260; or permission of instructor)
The course examines evolution of the vertebrates, including humans, as revealed through the fossil record. Laboratory, museum, and field studies.
- BIO 1447 Herpetology** 4 Q.H.*
(Prereq. BIO 1107 or BIO 1105 and BIO 1260)
Lectures emphasize the natural history, behavior, systematics, and zoogeography of recent amphibians and reptiles. The laboratory consists of identification and preparation of preserved specimens, particularly local amphibians and reptiles. Mandatory field trips.
- BIO 1448 Mammalogy** 5 Q.H.*
(Prereq. BIO 1107 or BIO 1105 and BIO 1211)
The course offers study of phylogeny, anatomy, physiology, and natural history of mammals. Field collection, laboratory preparation, and study of specimens are included. Laboratory.
- BIO 1449 Marine Birds and Mammals** 4 Q.H.*
(Prereq. BIO 1211 and BIO 1104, 1107, or 1141)
A comparative study of the biology of birds and mammals associated with the marine environment, with laboratory emphasis on species that occur along the New England coast. Topics will include phylogeny, systematics, zoogeography, morphology, physiology, reproduction, behavior, and ecology. Laboratory subjects will include identification, dissections, and specimen preparation.

*Lab fee required.

BIO 1452 Comparative Neurobiology 4 Q.H.*
(Prereq. BIO 1261)

The course focuses on structure and function in simple invertebrate nervous systems. Topics include parallel conductance theory at endogenous and synaptic potentials, nerve networks, simple sensory and motor systems.

BIO 1453 General Physiology of Invertebrates 4 Q.H.*
(Prereq. BIO 1261)

Basic animal functions as manifested among the major groups of invertebrates, with comparisons to the vertebrates, especially aquatic vertebrates. The course considers the cellular and biochemical bases for the functions, their control, their adaptiveness to diverse environments, and their evolutionary implications. Topics usually include: respiration, circulation, nutrition, metabolism, excretion, salt and water balance, temperature responses, biological clocks, sensory organs, and various effector organs.

BIO 1454 Comparative Vertebrate Physiology 4 Q.H.*
(Prereq. BIO 1261)

This course considers physiological principles in the context of the phylogenetic diversity of the vertebrates, with emphasis on adaptations of animals to aspects of their life histories and environments. Comparisons with invertebrate systems will be made when appropriate. Major themes to be considered include: energetics, temperature, circulation, respiration, skeletal muscle, and salt and water balance. Laboratory.

BIO 1457 Neuroethology 4 Q.H.*
(Prereq. BIO 1105)

A lecture, field, and laboratory course concentrating on the mechanisms underlying behavior of model invertebrates and lower vertebrates. The overall goal will be to develop a framework to explain behavior in terms of properties and connectivity of neuronal circuits. Topics to be covered include: the cellular biology of neurons and neuronal circuits, the organization of sensory and motor systems, and field and laboratory analysis of simple behaviors.

BIO 1460 Current Concepts in Cell Biology 4 Q.H.*
(Prereq. BIO 1261 and physics)

The course examines selected topics in cellular structure and function of eukaryotes, e.g., their electrical and mechanical characteristics and the underlying physical and biochemical processes. Topics will vary depending upon the instructor. Laboratory.

BIO 1465 Introductory Immunology 3 Q.H.
(Prereq. 1261)

The course covers basic consideration of the physical and chemical attributes of antigens and antibodies. Antigens of biological significance as well as in vivo antigen-antibody interactions are discussed.

BIO 1466 Immunology Laboratory 2 Q.H.*
(Prereq. BIO 1465 taken concurrently)

The course provides laboratory exercises dealing

with immunization, quantitative antigen-antibody reactions, electrophoretic studies (agar, acrylamide gel, and cellulose acetate), immuno-fluorescence.

BIO 1467 Molecular Biology 4 Q.H.
(Prereq. BIO 1261)

The course emphasizes experimental design and proof in macro-molecular chemistry and genetics. Studies current theories of the detailed molecular mechanisms for the preservation, expression, and evolutionary development of biological information. Applications to general biological and health problems will be emphasized. A two-hour period each week will be devoted to problem solving, research "game playing," and model building.

BIO 1470 Coastal Biology (Oregon Coast) 4 Q.H.

The first of a series of three courses intended to introduce the student to a wide range of coastal environments. This course includes studies of the open ocean, rocky intertidal areas, sandy beaches, and estuarine environments of the Oregon Coast. Basic biological principles will be demonstrated through comparative studies.

BIO 1471 Coastal Biology (Caribbean Coast) 4 Q.H.

The second of a series of three courses intended to introduce the student to a wide range of coastal environments. This course includes studies of the open ocean, rocky intertidal areas, sandy beaches, and estuarine environments of the Caribbean. Basic biological principles will be demonstrated through comparative studies.

BIO 1472 Coastal Biology (New England Coast) 4 Q.H.

The third of a series of three courses intended to introduce the student to a wide range of coastal environments. This course includes studies of the open ocean, rocky intertidal areas, sandy beaches, and estuarine environments of the New England Coast. Basic biological principles will be demonstrated through comparative studies.

BIO 1477 The Biology of Corals 4 Q.H.
(Prereq. Two years of college biology)

A field, lecture, and laboratory course which concentrates on tropical cnidaria. The course will study the systematics, anatomy, physiology and ecology of this group of animals which assume such an important role in tropical marine ecosystems.

BIO 1478 The Biology of Fishes 5 Q.H.
(Prereq. Two years of college biology)

A field, lecture, and laboratory course that examines the systematics, anatomy, behavior and ecology of fishes. Tropical forms are emphasized.

BIO 1479 Adaptations of Aquatic Organisms 4 Q.H.
(Prereq. Two years of college biology)

An exploration of aquatic organisms through a study of their evolutionary responses to the aquatic habitat.

* Lab fee required.

The physical properties of water create physical constraints that have affected form, function, and behavior of all aquatic organisms. Density, viscosity, diffusion rates, pressure effects, and elementary fluid mechanics will be used to explain such characteristics as the body shape of larvae, hearing and sound production, suspension feeding, and buoyancy. Course includes lectures, laboratories, demonstrations, and individual research projects.

BIO 1490 Senior Seminar **1 Q.H.**
(Prereq. Completion of "Biocore" BIO 1103-BIO 1261)

The course examines recent developments in various topics of zoology, microbiology, physiology, botany, ecology, genetics, and cell biology. Student presentation and analysis are emphasized. Limited to qualified juniors and seniors in the B.A. program and required of seniors in the B.S. program.

BIO 1491, BIO 1492 Directed Study **(each) 2 Q.H.**
(Prereq. Completion of "Biocore" BIO 1103-BIO 1261)

The course offers independent work on a chosen topic under the direction of members of the department. Limited to qualified juniors and seniors with approval of the department and special arrangements with the supervising faculty member. The two quarters of this course together are counted as one elective course in the Biology Department.

BIO 1495, BIO 1496, BIO 1497, BIO 1498
Junior-Senior Honors Program **(each) 4 Q.H.**
For details contact the Honors Office, 183 Holmes.

BIO 1811 Field Studies: Resource Management **5 Q.H.**
(Prereq. BIO 1107 or equivalent)

Offered through the School for Field Studies.
A field course that offers a study of the principles of resource management involving ecological concepts, physical geography, and methods for conducting resource inventories as affected by pressures of development from agriculture, urbanization, pollution, and industrialization.

BIO 1812 Field Studies: Wildlife Biology and Management **5 Q.H.**

(Prereq. BIO 1107 or equivalent)
Offered through the School for Field Studies.
A field course that examines the taxonomy, anatomy, and ecological interactions of animals and forage plants with emphasis on evolutionary perspective; includes a study of techniques for the census of populations.

BIO 1813 Field Studies: Exotic Ecosystems **5 Q.H.**
(Prereq. BIO 1107 or equivalent)

Offered through the School for Field Studies.
A field course in which basic ecological principles are applied to the study of world biomes with special emphasis on the tropics or the Arctic. Includes an individual research project that will demonstrate ecological principles.

BIO 1814 Field Studies: Population and Community Ecology **5 Q.H.**

(Prereq. BIO 1107 and BIO 1211 or equivalents; college algebra)
Offered through the School for Field Studies.
A field course that offers an ecological analysis of a specific region (Kenya, Alaska, or the Caribbean) by means of rigorous quantitative techniques and their application to determine efficacy in the field.

INT 1580 Physical Chemistry with Biological Applications **4 Q.H.**
(Prereq. BIO 1261)

This course examines physiochemical principles as they apply to biological processes. Topics include chemical equilibria, reaction kinetics, basic thermodynamics, oxidation-reduction reactions, bioenergetics, macromolecules in solution, and transport. The approach is quantitative, and problem solving as a tool for learning is emphasized. Basic assumptions and limitations underlying principles are explained; for the most part, however, rigorous derivations are avoided. Applications to basic experimental techniques in biochemistry are made by way of relevant biochemical examples.

Chemistry

Please note some courses in the College of Arts and Sciences are duplicated in different departments or colleges, or within a department. You may not receive credit for two such courses. If you have a question about whether one course does overlap with another, please consult the departments involved and the Dean's Office *before* taking the course.

Roman numerals at the end of course descriptions refer to *Core Curriculum* categories listed on page 1-2.

Introductory Chemistry Courses

CHM 1101 General Chemistry for Health-related Majors I **4 Q.H.**

This course examines topics of interest in inorganic chemistry for students in health-related majors. Topics

include: atomic structure; energy changes in physical and chemical processes; stoichiometry; chemical bonding; gases, liquids, and solids; solutions; acids and bases. The emphasis is on how such ideas are related to the chemistry of the body.

CHM 1102 General Chemistry for Health-related Majors II 4 Q.H.

(Prereq. CHM 1101)

This course provides an introduction to organic substances of biological significance, and goes on to discuss the structure and reactions of proteins, carbohydrates, lipids, and nucleic acids as well as the major pathways of metabolism.

CHM 1104 Composition of the Oceans 4 Q.H.

Seawater, its nonliving components, and the changes they undergo during natural and technological activities. Principles illustrated include the structures of substances and solutions, dynamic equilibrium, nuclear and ionic reactions, and the dynamics of pollution, as they relate to the oceans. The course presupposes an exposure to chemistry in secondary school. The course is not recommended for students who have completed a college-level chemistry course and is not for students majoring in any science.

CHM 1111 General Chemistry for the Life Sciences I 5 Q.H.*

This course, designed for nonchemistry majors, focuses on basic concepts and definitions; the mole concept and chemical stoichiometry, states of matter, solutions, periodicity of elements, atomic structure, chemical bonding and reactions. (II)

CHM 1112 General Chemistry for the Life Sciences IIA 5 Q.H.

(Prereq. CHM 1111)

This course, for students who will not be taking further chemistry, covers chemical equilibria; acids, bases, and buffers; introduction to the organic chemistry of compounds of biological relevance; introductory biochemistry of proteins, carbohydrates, lipids, and nucleic acids.

CHM 1122 General Chemistry for the Life Sciences IIB 5 Q.H.*

(Prereq. CHM 1111)

For nonchemistry majors who will be taking CHM 1264, Organic Chemistry. Subjects covered include chemical kinetics and equilibria; acids and bases; elementary thermodynamics and kinetics; electrolysis and electrochemistry. (II)

CHM 1131 General Chemistry for Engineering Students I 4 Q.H.

Primarily for engineering students. Introduction to the principles of chemistry, focusing upon the states and structure of matter and chemical stoichiometry.

CHM 1132 General Chemistry for Engineering Students II 4 Q.H.

(Prereq. CHM 1131)

Primarily for engineering students, the course offers an introduction to the principles of chemistry, focusing upon chemical equilibria, the nature of some common materials, and energy considerations in chemical and nuclear transformations.

CHM 1138 General Chemistry Laboratory

1 Q.H.*

Required for students planning to major in Chemical Engineering. Optional for other students taking CHM 1132, General Chemistry for Engineering Students II. Experiments pertaining to lecture material.

CHM 1141 General Chemistry I (nonlaboratory)

4 Q.H.

Similar to CHM 1151, but without laboratory. (Not available to majors from chemistry, biology, or pharmacy/allied health sciences.)

CHM 1142 General Chemistry II (nonlaboratory)

4 Q.H.

Similar to CHM 1152, but without laboratory. (Not available to majors from chemistry, biology, or pharmacy/allied health sciences.)

CHM 1151 General Chemistry for Science Majors I

5 Q.H.*

For chemistry majors and selected students in other majors, such as biology, physics, etc. Course focuses on basic concepts and definitions, moles, gas laws, stoichiometry, atomic structure, periodic properties, chemical bonding.

CHM 1152 General Chemistry for Science Majors II

(Prereq. CHM 1151 or CHM 1141)

5 Q.H.*

Topics include solutions, chemical kinetics, chemical equilibrium, chemical thermodynamics, electrochemistry, chemistry of the representative elements.

CHM 1153 The Chemical Elements 5 Q.H.*

(Prereq. CHM 1132, CHM 1122, CHM 1152, or equiv.)

For chemistry majors and selected students in other majors. The principal concepts of chemistry (thermodynamics, chemical bonding, kinetics) are applied to a systematic survey of the characteristic behavior of the chemical elements and their compounds.

Advanced Chemistry Courses**CHM 1221 Analytical Chemistry** 4 Q.H.*

(Prereq. CHM 1122 or equiv.)

For nonchemistry majors. The principles and applications of chemical methods of analysis with an introduction to selected instrumental methods.

CHM 1223 Chemical Oceanography 4 Q.H.*

(Prereq. CHM 1132, CHM 1122, CHM 1152, or equiv.)

Chemical reactions and interactions in the marine environment. Methods and techniques of marine chemical investigation.

CHM 1231 Analytical Chemistry for Chemistry Majors

5 Q.H.*

(Prereq. CHM 1122, CHM 1152, or equiv.)

For chemistry majors. The principles and practice of chemical methods of analysis. Experimental planning and interpretation. Introduction to selected instrumental methods.

* Lab fee required.

CHM 1264 Organic Chemistry for the Life Sciences I**5 Q.H.***

(Prereq. CHM 1122, CHM 1152, or equiv.)

For nonchemistry majors. Course covers nomenclature, preparation, properties, and reactions of common organic compounds.

CHM 1265 Organic Chemistry for the Life Sciences II**5 Q.H.***

(Prereq. CHM 1264)

Continuation of CHM 1264.

CHM 1271 Organic Chemistry for Chemistry Majors and Chemical Engineering Students I**3 Q.H.**

(Prereq. CHM 1153)

For chemistry majors and selected students in other majors. Course covers synthesis and properties of aliphatic and aromatic hydrocarbons and their functional derivatives; correlation between the structure of organic compounds and their physical and chemical properties; and electronic interpretation of organic reactions.

CHM 1272 Organic Chemistry for Chemistry Majors and Chemical Engineering Students II**5 Q.H.***

(Prereq. CHM 1271)

Continuation of CHM 1271.

CHM 1273 Organic Chemistry for Chemistry Majors and Chemical Engineering Students III**5 Q.H.***

(Prereq. CHM 1272)

Continuation of CHM 1272.

CHM 1381 Physical Chemistry I**3 Q.H.**

Chemical thermodynamics.

CHM 1382 Physical Chemistry II**3 Q.H.**

Topics include phase equilibria, solutions, kinetic theory of gases, transport properties, and chemical kinetics.

CHM 1383 Physical Chemistry III**3 Q.H.**

Course covers quantum chemistry, particles and waves, Schrodinger wave mechanics, and the chemical bond.

CHM 1394 Experimental Physical Chemistry I**2 Q.H.***

(Prereq. CHM 1381 concurrently)

This course covers experiments from various physical chemistry topics presented in CHM 1381.

CHM 1395 Experimental Physical Chemistry II**2 Q.H.***

(Prereq. CHM 1382 concurrently)

This course covers experiments from various physical chemistry topics presented in CHM 1382.

CHM 1396 Experimental Physical Chemistry III**2 Q.H.***

(Prereq. CHM 1383 concurrently)

This course covers experiments from various physical chemistry topics presented in CHM 1383.

CHM 1421 Instrumental Analysis**3 Q.H.**

(Prereq. CHM 1221, CHM 1231, or equiv.)

For nonchemistry majors only. Similar to CHM 1431, but without laboratory.

CHM 1431 Instrumental Analysis**5 Q.H.***

(Prereq. CHM 1392 and CHM 1231)

Course focuses on principles, methods, and applications of selected topics in electrometric, chromatographic, and spectroscopic analysis.

CHM 1441 Inorganic Chemistry**4 Q.H.**

(Prereq. CHM 1393)

Topics include atomic properties of free atoms and ions. Ionic bonding and the structure of the solid state. The Madelung calculation; the Born-Haber and other thermodynamic cycles. Valence-bond, molecular, orbital, and crystal field theories of bonding. Stereochemistry of compounds of representative elements. Electron-deficient compounds. Spectral and magnetic properties of transition metal compounds.

CHM 1461 Identification of Organic Compounds

(Prereq. CHM 1265 or CHM 1273)

3 Q.H.*

The course examines qualitative analysis of organic compounds and mixtures, using physical, chemical, and instrumental methods.

CHM 1501 Polymer Chemistry I**3 Q.H.**

(Prereq. CHM 1273 or equiv.)

The course provides an introduction to polymers. Major emphasis on synthesis. Step-reaction, chain-reaction, and ring-opening polymerizations. Copolymerization. Three-dimensional polymers and cross-linking. Corresponds to graduate course CHM 3501.

CHM 1502 Polymer Chemistry II**3 Q.H.**

(Prereq. CHM 1392 or equiv.)

Topics include physical chemistry of polymers in solution and bulk. Molecular characterization. Mechanical and physical properties in the glassy, rubbery, viscous, and semicrystalline states. Corresponds to graduate course CHM 3502.

CHM 1503 Polymer Chemistry III**3 Q.H.**

(Prereq. CHM 1501 and CHM 1502)

Topics include industrial practice, polymer processing, fibers, elastomers, coatings, adhesives, reinforced plastics. Relation of polymer structure to usage. Corresponds to graduate course CHM 3503.

CHM 1521 Advanced Analytical Chemistry III

(Prereq. CHM 1431 or equiv.)

3 Q.H.

The course examines analytical separations. Corresponds to graduate course CHM 3521.

CHM 1523 Advanced Analytical Chemistry II

(Prereq. CHM 1431)

3 Q.H.

Electroanalytical. Corresponds to graduate course CHM 3523.

CHM 1525 Advanced Analytical Chemistry I

(Prereq. CHM 1431 or equiv.)

3 Q.H.

The course covers optical methods of analysis. Corresponds to graduate course CHM 3525.

* Lab fee required.

CHM 1541 Advanced Inorganic Chemistry I

(Prereq. CHM 1441)

3 Q.H.

The course covers application of quantum chemistry to inorganic systems. Corresponds to graduate course CHM 3541.

CHM 1542 Advanced Inorganic Chemistry II

(Prereq. CHM 1541)

3 Q.H.

Continuation of CHM 1541. Corresponds to graduate course CHM 3542.

CHM 1543 Advanced Inorganic Chemistry III

(Prereq. CHM 1542)

3 Q.H.

Chemistry of the solid state. Corresponds to graduate course CHM 3543.

CHM 1561 Advanced Organic Chemistry I

(Prereq. CHM 1273 or CHM 1265)

3 Q.H.

Course focuses on organic structure and reactions. Corresponds to graduate course CHM 3561.

CHM 1562 Advanced Organic Chemistry II

(Prereq. CHM 1561)

3 Q.H.

The course examines organic structure and reactions. Corresponds to graduate course CHM 3562.

CHM 1563 Advanced Organic Chemistry III

(Prereq. CHM 1562)

3 Q.H.

The course focuses on organic structure and properties. Corresponds to graduate course CHM 3563.

CHM 1564 Spectrophotometric Identification of Organic Compounds**3 Q.H.**

(Prereq. CHM 1273 or equiv.)

The course examines spectrophotometric identification of organic compounds. Corresponds to graduate course CHM 3564.

CHM 1581 Advanced Physical Chemistry I

(Prereq. CHM 1393)

3 Q.H.

The course examines chemical thermodynamics. Corresponds to graduate course CHM 3581.

CHM 1591 Advanced Physical Chemistry II

(Prereq. CHM 1393)

3 Q.H.

The course focuses on atomic and molecular structure. Corresponds to graduate course CHM 3591.

CHM 1594 Advanced Physical Chemistry III

(Prereq. CHM 1393)

3 Q.H.

The course focuses on chemical kinetics. Corresponds to graduate course CHM 3594.

CHM 1800, CHM 1801, CHM 1802, CHM 1803, CHM 1804, CHM 1805 Undergraduate Research**(each) 4 Q.H.**

For chemistry majors. The course offers original experimental work under the direction of a staff member. Participation may begin in the middle year and will normally continue through the senior year. A minimum of a two-quarter commitment is required for participation. Approval of the administering committee is required.

CHM 1811 Advanced Chemical Laboratory**Practice I****4 Q.H.***

(Prereq. CHM 1273, CHM 1395, CHM 1396, CHM 1431)

Laboratory projects in analytical, inorganic, organic, and physical chemistry carried out under the direction of a staff member. Approval of the administering committee is required.

CHM 1812 Advanced Chemical Laboratory**Practice II****4 Q.H.***

(Prereq. CHM 1811)

Laboratory projects that may be a continuation of those done in Advanced Chemistry Laboratory Practice I or that may be in a different area under the supervision of the same or a different staff member. Approval of the administering committee is required.

CHM 1830 Special Topics**4 Q.H.**

(Prereq. CHM 1381)

CHM 1840, CHM 1841, CHM 1842, CHM 1843**Junior-Senior Honors Program****(each) 4 Q.H.**

For details contact the Honors Office, 183 Holmes.

INT 1580 Physical Chemistry with Biological applications**4 Q.H.**

(Prereq. BIO 1261)

This course examines physiochemical principles as they apply to biological processes. Topics include chemical equilibria, reaction kinetics, basic thermodynamics, oxidation-reduction reactions, bioenergetics, macromolecules in solution, and transport. The approach is quantitative, and problem solving as a tool for learning is emphasized. Basic assumptions and limitations underlying principles are explained; for the most part, however, rigorous derivations are avoided. Applications to basic experimental techniques in biochemistry are made by way of relevant biochemical examples.

*Lab fee required.

Economics

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Roman numerals at the end of course descriptions refer to *Core Curriculum* categories listed on page 1-2.

Unless otherwise stated, there are no prerequisites for advanced economics courses. Where prerequisites are indicated, exceptions may be granted with the instructor's permission.

ECN 1105 Principles of Macroeconomics 4 Q.H.

This course introduces students to macroeconomic analysis, which deals with the functioning of the overall economy. Topics include review of national income concepts; national income determination, fluctuation, and growth; role of the banking system and the Federal Reserve System; government expenditures and taxation; international trade; balance of international payments.

ECN 1106 Principles of Microeconomics 4 Q.H.

The course examines the role of the market pricing system of demand and supply in determining the allocation of resources to competing uses, and why this system may not function adequately in certain cases. Study includes the application of economic principles to private and public problems.

ECN 1115 Principles of Macroeconomics 4 Q.H.

The course offers an introduction to macroeconomic analysis. Topics include the flow of national income; economic growth and fluctuation; the role of money and banking; monetary and fiscal policies. Emphasis is on assisting students in developing conceptual tools for use in the analysis of economic problems facing modern society. (II)

ECN 1116 Principles of Microeconomics 4 Q.H.

The course focuses on development of basic theory of demand, supply, and market price. Applications to selected microeconomic problems such as basic monopoly and competition, and other issues that relate to the role of the pricing system in resource allocation and income distribution. (II)

ECN 1130 Medical Economics 4 Q.H.

Examination and discussion of health-care trends in the United States and selected foreign countries; causes of the rising costs of medical care; the particular nature of the demand for health-care services; the demand for paramedical personnel; Certificate of Need committees; health maintenance organizations; medical malpractice; increases in life expectancy and its impact on society; third-party payers; and the true cost of medical education.

ECN 1140 Economics of Crime 4 Q.H.

Economic analysis of crime and the criminal justice system. Topics include theoretical and empirical analysis of the economic causes of criminal behavior; the social costs of crime and its prevention, and design of enforcement policies.

ECN 1150 Economics of World Energy and Primary Resources 4 Q.H.

(Prereq. ECN 1105/1115 or 1106/1116)

Investigation of economic, political, and historical backgrounds of the energy and other resources problems. Future impact of primary resources limitations on United States and world economics are analyzed. Also included are feasibility studies of resource substitution.

ECN 1155 Superpower Economics 4 Q.H.

This course offers an analysis of the relative economic structure and strength of the United States, the Soviet Union, Japan, the Common Market, and China, as well as the economic relations among these powers. The course also examines the impact of these relations on the domestic economies of the superpowers and of the developing nations of the world.

ECN 1170 Economic Issues In Minority Communities 4 Q.H.

Analysis of the economic conditions of nonwhite minorities within the U.S. economy. Historical and cultural materials will be included, as well as specific theoretical and empirical analysis of the economic problems confronting minority communities. (VI)

ECN 1215 Macroeconomic Theory 4 Q.H.

(Prereq. ECN 1105, ECN 1115, or equiv.)

Investigation of the conceptual and empirical problems of creating and using national accounts; price index problems; conceptual and empirical evaluation of consumption and investment functions and their policy implications; multiplier and accelerator models; a brief history of recent cyclical fluctuations. Theories of inflation, unemployment and growth are analyzed in the light of recent economic history.

ECN 1216 Microeconomic Theory 4 Q.H.

(Prereq. ECN 1106, ECN 1116, or equiv.)

Detailed study of supply-and-demand analysis, various elasticity concepts and applications, theory of consumer demand, theory of production, and derivation of cost curves. Detailed analyses of pricing and output behavior in the several market structures with their welfare implications; the pricing of resources.

ECN 1250 Statistics I 4 Q.H.

Topics include elementary set theory, basic probability, measurement and presentation of economic statistics, descriptive statistics, basic estimation techniques, testing statistical hypotheses, and sampling problems.

ECN 1251 Statistics II**4 Q.H.**

(Prereq. ECN 1250)

Topics include analysis of variance, correlation and linear regression analysis, multivariate regression analysis, and Bayesian decision making.

ECN 1310 Labor Economics**4 Q.H.**

(Prereq. ECN 1106/1116 or 1105/1115)

Economic analysis of the labor market and the labor force. Topics include the supply, development and efficient use of human resources; wage determination; the changing occupational and industrial structure; causes, nature and incidence of unemployment; the economic impact of unions, related labor market institutions and relevant public policies.

ECN 1311 Employment and Training Programs and Policies**4 Q.H.**

(Prereq. ECN 1105/1115)

Nature and objectives of employment and training programs; nature and causes of human resource problems; current and previous efforts to solve human resource problems in the U.S.; planning of human resource programs; economic evaluation of employment and training programs.

ECN 1312 Women in the Labor Market**4 Q.H.**

(Prereq. 1106/1116)

Economic analysis of the labor market position of women in the context of the changing economic structure and labor market institutions. Analysis of female labor force participation differences; male-female differentials in earnings and unemployment; occupational concentration, occupational segregation, and theories and evidence of sex discrimination; new opportunities for women.

ECN 1313 Local Labor Market Analysis and Human Resource Planning**4 Q.H.**

(Prereq. ECN 1115 and ECN 1116, or ECN 1105 and ECN 1106; ECN 1310 strongly recommended)

Introduction to methods and data sources for analyzing conditions in regional, state, and local labor markets. The primary aim is to determine the extent, nature, and causes of human resource problems and to utilize that information in planning and designing appropriate employment and training strategies.

ECN 1314 Economics of Education and Human Capital**4 Q.H.**

(Prereq. ECN 1115 and ECN 1116, or ECN 1105 and ECN 1106; ECN 1311 strongly recommended)

Theoretical and empirical treatment of economic issues related to education and job training, including formal education (pre-school through post-secondary), vocational education, on-the-job training, and government-sponsored employment and training programs. Emphasis is on follow-up studies, cost-effectiveness analysis, and benefit-cost analysis for determining the effectiveness of education and training investments from a private and social standpoint.

ECN 1315 Income Inequalities and Discrimination(Prereq. ECN 1106/1116 or 1105/1115) **4 Q.H.**

Economic analysis of income inequalities, poverty and discrimination. Examination of the causes of income inequality and the nature, causes and effects of poverty; economics of racial discrimination; public welfare system and other income maintenance schemes.

ECN 1320 Urban Economics**4 Q.H.**

(Prereq. ECN 1106/1116)

Study of urban growth and development, intermetropolitan location of business firms, regional shifts in economic activity, intra-metropolitan location of firms and households, and land use patterns.

ECN 1321 Urban Economic Problems and Policies

(Prereq. ECN 1106/1116)

4 Q.H.

Sequal to ECN 1320.

Economic analysis of selected urban problems such as housing, poverty, transportation, education, health, crime, and the urban environment. Discussion of public policies relating to such problems.

ECN 1322 Economics of Transportation**4 Q.H.**

(Prereq. ECN 1106/1116)

Transportation and land-use patterns; externalities; social costs and social benefits of various modes of transportation, ownership, regulations, and financing of various modes of transportation; economics of new technology in transportation.

ECN 1330 Development Economics**4 Q.H.**

(Prereq. ECN 1105/1115 or 1106/1116)

Prospects for economic growth and development in poor nations as indicated by economic analysis and historical experience; social, cultural, and institutional determinants of growth; analysis of agriculture and development, the role of technological change, population; and foreign trade. (V)

ECN 1331 American Economic Development**4 Q.H.**

Economic development of the United States from the colonial period to the present, historical changes in available factors, economic institutions and technologies, special attention to preconditions of industrialism; the American Industrial Revolution, its spread and socio-economic consequences; the Great Depression and the subsequent rise of mixed economy and welfare state; U.S. adjustments to postwar economic changes.

ECN 1332 Economic History of Less Developed Countries**4 Q.H.**

(Prereq. ECN 1105/1115 and 1106/1116)

The problems of initiating and sustaining economic development in selected Third World countries during the last two hundred years. Country-specific case studies cover the role of traditional economic structures, different development goals and strategies, state policies, and international economic relations.

ECN 1333 European Economic Development**4 Q.H.**

Economic inheritance of the nineteenth-century development of capitalism and laissez-faire; the aftermath of the Industrial Revolution, European overseas expansion, the twentieth century, the world wars, the dissolution of empires, American economic conquest and European integration, the future of less developed areas in southern Europe; environmental impact of industrialism and the implications of technological society. (III)

ECN 1334 Comparative Economics**4 Q.H.**

(Prereq. ECN 1105/1115, 1106/1116)

Competing types of theoretical economic systems; analysis of organization and operation of currently existing types of communist, socialist, and capitalist economies; comparison and evaluation of economic behavior and performance of different economic systems.

ECN 1335 International Economics**4 Q.H.**

(Prereq. ECN 1115, ECN 1116 or equiv.)

Introduction to the theory of international trade and payments; analysis of tariffs and commercial policy; the international monetary system; trade and payment issues in developed and less-developed countries.

ECN 1337 History of Economic Thought**4 Q.H.**

(Prereq. ECN 1105/1115/1106/1116)

The evolution of Western economic thought. By studying several important schools in economics, the course examines the questions raised and analytical methods used by economists to study human behavior.

ECN 1340 Government Expenditures: Structure and Evaluation**4 Q.H.**

(Prereq. ECN 1106, ECN 1116, or equiv.)

Fiscal functions of government, fiscal institutions and politics, theory of social goods, public expenditure growth and structure, the federal budget expenditure evaluation and cost-benefit case studies, fiscal federalism in theory and practice; and issues of public debt and deficit.

ECN 1341 Financing of Government: Taxation and Debt**4 Q.H.**

(Prereq. ECN 1106, ECN 1116, or equiv.)

Principles of taxation; problems of tax structure and reform, at federal, state, and local levels; tax incidence; effects of taxation on economic efficiency and growth; negative income tax and social security finance; issues of public debt and deficit.

ECN 1342 Money and Banking**4 Q.H.**

(Prereq. ECN 1105, ECN 1115, or equiv.)

A study of the nature and the functions of money, credit, and the role of financial organizations in the U.S. economy. The basic theories of banking, the money supply, monetary theory, and monetary policy will be emphasized.

ECN 1345 Business Cycles and Inflation**4 Q.H.**

(Prereq. ECN 1105 or ECN 1115; ECN 1106 or ECN 1116; ECN 1215)

A study of the theories of business cycles and inflation and an empirical application of these theories to

current business cycle, inflation, and stagflation problems.

ECN 1350 Introduction to Econometrics**4 Q.H.**

(Prereq. ECN 1105 or ECN 1115; ECN 1106 or ECN 1116; and ECN 1251)

Introduction to the methods of econometric analysis and forecasting. Coverage includes: ordinary least squares, piecewise regression, tests and corrections for serial correlation and heteroskedasticity, specification analysis, simultaneous equations systems, errors in variables, dynamic models and elementary forecasting.

ECN 1351 Problems in Economic Research**4 Q.H.**

(Prereq. ECN 1105 or ECN 1115; ECN 1106 or ECN 1116; ECN 1251)

Examination of research methods utilized by practicing economists. A discussion, from applied areas of economics, of typical problems, including choice of modeling framework; problems of data collection; review of estimation techniques; interpretation of results and development of static and dynamic adaptive policy models.

ECN 1353 Introduction to Mathematics for Economists**4 Q.H.**

(Prereq. ECN 1115 or ECN 1105; ECN 1116 or ECN 1106)

Basic tools of mathematics, matrix algebra, differential and integral calculus and classical optimization are studied with special reference to their application in economics.

ECN 1354 Mathematics for Economists**4 Q.H.**

(Prereq. ECN 1353 or permission of instructor)

For economics, mathematics, business, and engineering students interested in a broad coverage of economic analysis using mathematical techniques. Static and dynamic models of micro- and macroeconomics are studied using differential and difference equations, mathematical programming and game theory.

ECN 1360 Managerial Economics**4 Q.H.**

(Prereq. ECN 1116 or ECN 1106)

Application of economic principles and theory, by the use of case studies, to the solution of decision-making problems in such areas as demand forecasting, price policies, estimation and control of costs, financing of capital investments, and responses to government taxation and regulation policies.

ECN 1361 Social Control of Economic Activities**4 Q.H.**

Development of the government's role in economic activities, examining the relation between the government and industry, labor, agriculture, public utilities, and consumers. The course will trace the changing role of the government from a laissez-faire policy to one of direct intervention in the economy. Covers such topics as wage and price control, environment and antipollution policies, consumer protection, and conglomerate mergers.

ECN 1362 Industrial Organization and Public Policy
(Prereq. ECN 1216/1106/1116) **4 Q.H.**

An analytic framework and empirical study of how the structure of industrial organization and conduct of sellers and buyers affects economic performance and welfare. Industrial examples and case studies included. An examination of antitrust as a public policy designed to promote better market performances.

ECN 1401 Advanced Economic Theory **4 Q.H.**
(Prereq. ECN 1216 and ECN 1215)

Advanced theoretical treatment of selected topics in micro- and macroeconomics. Recommended for students planning to take graduate economics.

ECN 1481 Directed Study **1 Q.H.**
(Prereq. Qualified senior economics majors and approval of department chair)

This course offers independent work on a chosen topic under the direction of a faculty member of the department. It should not be substituted for the course requirements leading to a B.A. or B.S. degree in Economics. Up to four quarter hours per offering, with an eight quarter-hour maximum. May be taken only with the prior approval of department chairperson.

ECN 1482 Directed Study **2 Q.H.**
(Prereq. Qualified senior economics majors and approval of department chair)

This course offers independent work on a chosen topic under the direction of a faculty member of the department. It should not be substituted for the course requirements leading to a B.A. or B.S. degree in Economics. Up to four quarter hours per offering,

with an eight-quarter hour maximum. May be taken only with the prior approval of department chairperson.

ECN 1483 Directed Study **3 Q.H.**
(Prereq. Qualified senior economics majors and approval of department chair)

This course offers independent work on a chosen topic under the direction of a faculty member of the department. It should not be substituted for the course requirements leading to a B.A. or B.S. degree in Economics. Up to four quarter hours per offering, with an eight-quarter hour maximum. May be taken only with the prior approval of department chairperson.

ECN 1484 Directed Study **4 Q.H.**
(Prereq. Qualified senior economics majors and approval of department chair)

This course offers independent work on a chosen topic under the direction of a faculty member of the department. It should not be substituted for the course requirements leading to a B.A. or B.S. degree in Economics. Up to four quarter hours per offering, with an eight-quarter hour maximum. May be taken only with the prior approval of department chairperson.

ECN 1492 Senior Economics Seminar **4 Q.H.**
(Prereq. ECN 1216 and ECN 1215; senior economics majors only)

Coordinating and applying economic concepts, methodology, and data to contemporary issues and problems of broad social, economic, and philosophical importance.

ECN 1495, ECN 1496, ECN 1497, ECN 1498
Junior-Senior Honors Program (each) 4 Q.H.
For details contact the Honors Office, 183 Holmes.

English

Please note some courses in the College of Arts and Sciences are duplicated in different departments or colleges, or within a department. You may not receive credit for two such courses. If you have a question about whether one course does overlap with another, please consult the departments involved and the Dean's Office before taking the course.

Roman numerals at the end of course descriptions refer to *Core Curriculum* categories listed on page 1-2.

Unless otherwise indicated, the prerequisite for upperclass courses is a Freshman English sequence. For students in the Basic Colleges this means ENG 1110 and ENG 1111; ENG 1013, ENG 1014, and ENG 1111; ENG 1110, ENG 1014 and ENG 1111. For the College of Engineering, ENG 1111, and ENG 1113. For Lincoln College, ENG 1110, ENG 1111, and ENG 1114; ENG 1110, ENG 1014, ENG 1111, and ENG 1114; or ENG 1013, ENG 1014, ENG 1111, and ENG 1114. And for international students, ENG 1005 and ENG 1006.

ENG 1001 Intensive English as a Second Language
Reviews English grammar to help non-native speakers to develop listening, speaking, reading, writing, and studying skills. Language laboratory, and small-group tutorials.

ENG 1004 Fundamentals of English for Non-native Speakers **4 Q.H.**
(Prereq. Special placement—For non-native speakers whose performance or scores indicate that their writing skills are not yet up to those required for ENG 1005.)

Provides intensive practice in composition with accent on accurate, intelligible writing and paragraphs organized around single, well-supported ideas. Encourages sentence-combining and vocabulary development, and gives special attention to individual writing needs. Includes prose readings, class discussion, and selective review of grammar.

ENG 1005 English for International Students I
(Prereq. ENG 1004 or special placement) **4 Q.H.**
Emphasizes the development of skills needed in

writing clear, expository prose essays. Requires the regular writing and rewriting of essays of increasing length and complexity. Focuses on appropriate prose readings for discussion and analysis, and introduces techniques preparatory to research writing.

ENG 1006 English for International Students II

4 Q.H.

(Prereq. ENG 1005 or equiv.)

Introduces the study of literature through close reading and discussion of fiction, nonfiction, and poetry. Advances development of rhetorical techniques by requiring frequent essays written in relation to the readings and rewritten to improve content, organization, and diction. Provides guided experience with using outside sources and library materials for writing a term paper.

ENG 1013 Fundamentals of English I

4 Q.H.

(Prereq. Special placement)

Offers an introduction to principles of the writing process. Emphasizes individualized assistance in generating and developing ideas, drafting, revising, and organizing; and the conventions of written English.

ENG 1014 Fundamentals of English II

4 Q.H.

(Prereq. ENG 1013 or ENG 1110)

Continues instruction in writing, emphasizing exposition, argument, and academic essay writing, as well as the conventions of English usage, punctuation and syntax. Individualized assistance in invention, drafting, revision, and editing.

ENG 1110 Freshman English I

4 Q.H.

Focuses on the individual student's writing skills. Includes application of important principles of composing, logic and rhetoric to exposition and argumentation. Reviews of sentence structure, punctuation and paragraphing, analyzes essay forms and problems. Students receiving a grade of S must take ENG 1014.

ENG 1111 Freshman English II

4 Q.H.

(Prereq. ENG 1110 or ENG 1014)

Continues instruction in writing, with emphasis on expository methods of defining, describing, analyzing, persuading, and composing the research paper. Students write lengthy critical essays based on consideration of primary and secondary materials. Selections of poems, stories, and plays provide an introduction to literature and are the subject matter for discussion of writing technique and written assignments. ENG 1111 follows ENG 1110 and is required of all freshmen in the University.

ENG 1113 Great Themes in Literature

4 Q.H.

Explores a theme in literature through a number of illustrative works from the past and the present. Develops techniques of research and documentation.

ENG 1114 Freshman Technical Writing

4 Q.H.

(Prereq. ENG 1110, ENG 1111)

Provides Bachelor of Engineering Technology students with the how-to's of writing technical descrip-

tion, graphics, instruction sets, proposals and reports. Includes oral presentations.

ENG 1115 Poetry

4 Q.H.

Involves exercise in close reading of selected poems, study of critical terms, and practice in different critical approaches to poetry; examines techniques for reading a variety of poetic texts. (II)

ENG 1116 Fiction

4 Q.H.

Involves reading of selected novels and short stories, study of critical terms, practice in different critical approaches to fiction. (II)

ENG 1117 Drama

4 Q.H.

Involves extensive exercise in reading of selected plays, study of critical terms, practice in different critical approaches to drama. (II)

ENG 1118 Introduction to Language and Linguistics

4 Q.H.

Introduces students to a new way of thinking about language. Normally, using language is as unconscious an activity as walking or chewing gum. But if we ask the right questions, we can uncover much of our unconscious linguistic knowledge: about sentence structure (syntax), meaning (semantics), word forms (morphology), and speech sounds (phonology). Understanding these will lead us to examine other issues related to language: the Black English/Standard English debate, women's and men's language, "talking" chimpanzees, "talking" computers, and the nature/nurture controversy. (II)

ENG 1119 History of the English Language

4 Q.H.

Studies the development of modern English from Anglo-Saxon beginnings; effects of Scandinavian and Norman invasions; dialect geography; evolutionary changes, word formation and borrowing; origins of writing and problems of spelling. Readings include both formal and informal writings, literary selections, wills, journals, and private and public letters.

ENG 1120 Survey of English Literature I

4 Q.H.

Surveys the major British writers and major literary forms and works from the Middle Ages to the end of the eighteenth century. Works by such writers as Chaucer, Spenser, Shakespeare, Milton, Pope, and Swift.

ENG 1121 Survey of English Literature II

4 Q.H.

Surveys the major British writers and major literary movements from the romantic period through the Victorian and Modern periods to the present moment. Works by such writers as Wordsworth, Coleridge, Keats, Browning, Tennyson, Yeats, Lawrence, Lessing, and Beckett.

ENG 1123 Survey of American Literature I

4 Q.H.

Surveys the major American writers and major literary forms and works from the colonial period to the Civil War. Works by such writers as Bradstreet, Taylor, Cooper, Poe, Hawthorne, Melville, and Emerson.

ENG 1124 Survey of American Literature II**4 Q.H.**

Surveys the major American writers and major literary forms and works from the Civil War to the mid-twentieth century. Works by such writers as Whitman, Dickinson, Twain, James, Hemingway, Fitzgerald, Faulkner and Wright.

ENG 1125 Technical Writing I**4 Q.H.***

Trains writers in the clear, unambiguous style of technical writing. Students practice these skills by writing technical proposals, process descriptions, feasibility and program reports, and operators' manuals. Includes oral presentations.

ENG 1126 Backgrounds in English and American Literature**4 Q.H.**

Examines translation of Greek, Roman, and biblical literature as background for literary study. Emphasis on the development of myth, genre, and theme. Readings include, among others, Homer, Virgil, Ovid, the most influential parts of the Bible, and Dante.

ENG 1275 Grammar for Journalists**4 Q.H.**

(Prereq. Journalism majors only)

Reviews the mechanics of newspaper and magazine prose. Emphasizes grammatical forms, punctuation, spelling, effective structures, and conventional usage.

ENG 1276 Science Fiction**4 Q.H.**

Traces the development of various SF themes and approaches, from early man-machine love-hate relationships to alien close encounters of all kinds. From *Frankenstein* to most recent titles. Major SF films. Lab fee.

ENG 1277 Topics in Science Fiction**4 Q.H.**

Focuses on a single writer or group of writers (Wells or writers of contemporary American science fiction); a theme (women in science fiction or the future city); or a unifying idea (time travel or utopia/dystopia).

ENG 1278 Modern Bestseller**4 Q.H.**

Explores the function of quest, romance, and adventure in a selection of contemporary, bestselling fiction.

ENG 1279 The Modern Novel**4 Q.H.**

Studies the major British and American novelists of the twentieth century. Considers theme and form in such authors as Lawrence, Woolf, Fitzgerald, Ellison, Doctorow, and Didion.

ENG 1280 Modern Drama**4 Q.H.**

Studies the development of drama from realism to surrealism, from Ibsen to Beckett.

ENG 1281 The Modern Short Story**4 Q.H.**

Studies the shortstory from Poe to the present, including such writers as Joyce and Kafka, Hemingway and Flannery O'Connor.

ENG 1283 Contemporary Fiction**4 Q.H.**

Examines British and American writers from 1945 to the present, including such figures as Lessing, Burgess, Pynchon and Barth. Emphasizes experimental and modernist authors.

ENG 1284 Business Tradition in Literature**4 Q.H.**

Examines the image of the business world as presented in novels and plays, biographies and autobiographies. Analyzes the cultural and historical contexts as well as the motives of the characters in society.

ENG 1285 Literature and the Law**4 Q.H.**

Investigates the problems of crime and justice as reflected in literature, from ancient to contemporary works. The secondary focus is the law itself as literature, including explorations of case files and other legal material. The readings encourage students to discover the changing nature of the criminals—heroes or victims or villains—and to deal with the social, psychological and political facts that define him or her.

ENG 1286 Literature and Politics**4 Q.H.**

Explores how authors from Sophocles to Mailer represent the religious, moral, and ethical conflicts arising from the acquisition, use, and misuse of political power. The literature falls into several categories: utopian, which establishes a conflict between the ideal and the real; satirical, which threatens a power structure by exposing it to scorn; analytic, which describes the rise to and fall from power of individuals, parties, or states; and investigative, which takes the reader inside a power elite to observe its inner operations. Examines the difference between the ideal of government and its reality.

ENG 1287 The Literature of Science**4 Q.H.**

Examines historically the discovery methods and models of literature and science, exploring one or more of the following areas: the relationship of the methods and models of literature and science; the treatment of scientific methods and models in literature; the use of literary devices, techniques, and traditions in scientific texts. Readings will be drawn from historically significant scientific texts, literary texts, or some combination of these. (VI)

ENG 1288 Film and Text**4 Q.H.***

Studies either the similarities and differences between literary texts and film versions of those texts or the interrelations between film and literature as means of cultural expression during a specific historical period. For example, the course might study Doctorow's *Book of Daniel* in relation to the film version, *Daniel*, or it might study books and movies of a period like the sixties that reflect the spirit of the era (*Catch-22*, *The Graduate*). Lab fee.

ENG 1289 Shakespeare on Film**4 Q.H.***

Examines the various treatments of Shakespeare's plays on film. Treats the technical aspects of film and how these are used by directors to transfer Shakespeare's plays from the stage to the screen.

Lab fee.

* Lab fee required.

ENG 1290 Topics in Film 4 Q.H.*

Studies a theme or problem (film and society, film and politics), a period in film history (American film from 1945 to the present), a film genre (the western, film noire), or a film director (Hitchcock, Coppola). Lab fee.

ENG 1291 Popular Culture 4 Q.H.

Television, film, the news media, advertising, rock music, popular magazines, romance novels, commercials, etc. The course studies the social meaning of the major artifacts of contemporary culture, from TV melodrama to clothing fashions. It situates culture within the system of social distinctions that derive from class hierarchies, and it analyzes the way a capitalist economic system shapes the values, ideals, and meanings that are disseminated in American popular culture.

ENG 1293 Topics in Popular Culture 4 Q.H.

Focuses on such topics as the soap opera, the western, and the police story; on a popular culture activity; or on a popular culture perspective.

ENG 1294 Modern Film 4 Q.H.

A selection of major modern films from around the world will be studied from a thematic, cultural, and historical perspective. Special attention is given to political, social, ethical, and psychological issues, as well as to the way common human themes emerge in quite diverse cultures. The course also covers the basic procedures of film interpretation.

ENG 1300 Topics in Fiction 4 Q.H.

Studies a particular kind of fiction, such as the novella; a problem in fiction, such as the role of the narrator; a particular group of fiction writers; or a theme in fiction.

ENG 1301 Topics in Drama 4 Q.H.

Studies a particular kind of drama, a particular group of dramatists, or a theme in drama.

ENG 1302 Topics in Poetry 4 Q.H.

Studies a sub-genre of poetry, such as the sonnet or the dramatic monologue; a problem in poetry; a particular group of poets; or a theme in poetry.

ENG 1307 Approaches to Literature 4 Q.H.

Examines ancient and modern theories of literature. Selections from the criticism of Plato, Aristotle and the Romantics, as well as from Marxist, Freudian, Jungian, and formalist theories.

ENG 1308 Myth and Archetype in Literature 4 Q.H.

Studies twentieth-century theories of myth and archetype as they have influenced our understanding and analysis of works of literature.

ENG 1309 Topics in Literary Criticism 4 Q.H.

Studies a specific problem method or school of criticism, such as structuralism, mythopoeic, or archetypal criticism.

ENG 1340 Writing Workshop 1 Q.H.*

(Prereq. Freshman English and 80 Q.H.)

Students will write one long paper, often in conjunction with an assigned paper in another course, that

will be produced in a class booklet at the end of the quarter. Emphasis is on the writing process: multiple drafts, revision, editing, and publication.

ENG 1350 Intermediate Writing 4 Q.H.*

Provides writing instruction in an interdisciplinary course in which students develop papers on topics relating to their majors. Led by English faculty, students will also read and respond to essays from various disciplines. Writing will be guided in stages from proposal through finished product.

ENG 1351 Creative Writing 4 Q.H.

Gives the developing writer an opportunity to practice various forms of writing both poetry and prose. Features in-class discussion of student work.

ENG 1352 Advanced Writing 4 Q.H.

(Prereq. ENG 1350 or permission of instructor)

Offers an opportunity for experienced writers to hone their skills, and develop their interests in different forms and subjects.

ENG 1357 Poetry Workshop 4 Q.H.

(Prereq. ENG 1351 or permission of instructor)

Advanced workshop in writing and examining original student poetry. Students experiment in established poetic forms and compose their own work.

ENG 1358 Fiction Workshop 4 Q.H.

(Prereq. ENG 1351 or permission of instructor)

Advanced workshop in writing and examining original student fiction.

ENG 1359 Non-Fiction Workshop 4 Q.H.

(Prereq. ENG 1350 or ENG 1351 or permission of instructor)

Advanced workshop in writing with focus on such forms as short essays, reviews, and profiles.

ENG 1360 Topics in Writing: Reading and Writing Non-Fiction 4 Q.H.

Combines literary analysis and creative writing. Concentrates on subjects of twentieth-century non-fiction prose such as politics, science, "culture," athletics, and natural history. Authors who might be considered include: Elizabeth Drew, Russell Baker and Stephen Jay Gould.

ENG 1361 The Writing Process 4 Q.H.

Explores the nature and activity of writing in theory and practice. Students observe writers at work and tutor students in the Writing Center as part of the course work.

ENG 1362 Publication Arts 4 Q.H.

Acquaints students with basic publishing skills. Each student chooses an area of specialization, such as fiction, medicine, law, or engineering, in order to develop skill in editing manuscripts.

ENG 1370 Technical Writing II 4 Q.H.

(Prereq. ENG 1125 or permission of instructor)

Offers an opportunity for students to develop technical writing skills in a particular subject or form.

*Lab fee required.

ENG 1371 Writing for the Computer Industry**4 Q.H.**

(Prereq. ENG 1125, or permission of instructor and one computer science course)

Focuses on computer documentation: general information, operating and programming instructions. Includes graphics, layout, testing, and revision.

ENG 1380 Writing for the Professions: Health Services**4 Q.H.**

Provides students in the College of Nursing and the College of Pharmacy and Allied Health Professions with instruction and practice in writing lab reports, clinical evaluations, medication analyses, HEW proposals, and other professional forms.

ENG 1381 Writing for Professions: Business Administration**4 Q.H.***

(Prereq. ENG 1111)

A professional writing course that relies on the process approach to writing and features an extended simulation, which integrates common written and oral communication through practical application. ENG 1381 allows students to gain experience similar to that of the workplace.

ENG 1382 Writing for the Professions: Criminal Justice**4 Q.H.**

Provides students in the College of Criminal Justice with instruction in writing a variety of professional forms.

ENG 1400 Topics in Genre**4 Q.H.**

Studies several genres concurrently; or studies, cross-generically, literary modes such as satire, pastoral, or melodrama; or studies a theme in a number of different genres.

ENG 1401 Introduction to Syntax**4 Q.H.**

Offers an introduction to syntax, the structural rules of a language. Develops and tests syntactic theory which, like other scientific theories, seeks to explain why things are the way they are. The question underlying the investigation is: how do the structures of language relate to the structure of the human mind?

ENG 1402 Grammars of English**4 Q.H.**

Provides a study of the rules of sentence construction in English, contrasting the traditional framework with current linguistic models. Students will have the opportunity to prepose, postpose and extrapose as they learn to manipulate grammatical constructs.

ENG 1407 Introduction to Semantics**4 Q.H.**

Focuses on meaning and how it is expressed in language—through words, sentence structure, intonation, stress patterns and speech acts. How do content, logic, and speakers' and listeners' assumptions affect what sentences can mean? In what ways is linguistic meaning determined by our perceptual system or our culture?

ENG 1408 Topics in Linguistics**4 Q.H.**

Examines closely one of a range of topics from the perspective of current linguistics: American dialects,

language and law, women's and men's language, words and word structures, issues in linguistics and literature.

ENG 1409 American Novels I**4 Q.H.**

Focuses on the themes, forms, and techniques of major American novelists of the nineteenth and early twentieth centuries, such as Cooper, Hawthorne, Melville, Twain, and James.

ENG 1410 American Novels II**4 Q.H.**

Studies the modern and contemporary American novel. Considers such writers as Cather, Hemingway, Fitzgerald, Faulkner, Bellow and Baldwin. (III)

ENG 1411 English Drama I**4 Q.H.**

Surveys representative English drama, excluding Shakespeare, from *Everyman* to Goldsmith and Sheridan. Analyzes dramatic forms as well as the role of the Elizabethan theaters, dramatic conventions, audience content, and acting styles in Restoration farces.

ENG 1412 English Drama II**4 Q.H.**

Surveys representative English drama of the nineteenth and twentieth centuries. Charts the development of the genre from the nineteenth century to the present and discusses themes and forms.

ENG 1550 Psychology and the Novel**4 Q.H.**

Concentrates on twentieth-century novels and short stories which stress individual behavior and motivation and reveal human mental and emotional processes. Includes such writers as Kafka, Dostoevski, Faulkner, Conrad, and Lawrence.

ENG 1551 Sex Roles in Literature**4 Q.H.**

Investigates the relation between sex roles, male and female, and literary portrayals. Selections represent male and female writers and provide a culturally comparative perspective.

ENG 1552 Fantasy**4 Q.H.**

Studies in the theory and practice of fantasy as found in works of such writers as Swift, Carroll, C.S. Lewis, Orwell, and Tolkien.

ENG 1557 Topics in Fantasy**4 Q.H.**

Explores such areas as dreams, nightmares, and borderline states of consciousness in the works of such writers as Poe and Kafka.

ENG 1558 Literature in Context**4 Q.H.**

Attempts to place the writer in the context of a special theme. For example, the course might study a group of authors influenced by their common interest in psychoanalysis, by their social consciousness, or by an interest in the Wild West and the settlement of America.

ENG 1559 Literature in Context**4 Q.H.**

Similar to ENG 1558 but with different texts and contexts.

ENG 1600 Topics in Literature**4 Q.H.**

Experiments with subjects and themes such as the censored novel, the Holocaust, alienation, and popular song lyrics.

* Lab fee required.

ENG 1601 Topics in Literature 4 Q.H.

Same as ENG 1600 but with different topics.

ENG 1602 Major Figure 4 Q.H.

Examines in detail the work of one writer such as Mark Twain, Virginia Woolf, or Eugene O'Neill.

ENG 1607 Major Figure 4 Q.H.

Same as ENG 1602, but with concentration on a different writer.

ENG 1608 Urban Life and Literature 4 Q.H.

Examines the city in literature as it has been depicted from ancient times to the present, from Plato to Barthelme. Discusses such themes as the city as a locus of evil, the city as a place of possibility, and the city as a center of art and an influence on creative form in an interdisciplinary fashion.

ENG 1609 Contemporary American Literature 4 Q.H.

Studies major movements in American poetry and fiction since 1945. Considers such poets as Plath, Ginsberg, and Ashbery, and such novelists as Morrison, Pynchon, and Vonnegut.

ENG 1610 Early American Literature 4 Q.H.

Examines American literature of the colonial and federal periods, including Bradford, Taylor, Edwards, Franklin, Wheatley, Irving, and Bryant.

ENG 1611 New England Renaissance 4 Q.H.

Studies the development of a native tradition in the context of democratic and romantic attitudes toward experience and the paradox these attitudes reveal. Includes such writers as Emerson and Thoreau, Hawthorne and Melville.

ENG 1612 American Realism 4 Q.H.

Examines the realistic tradition in American literature, including local color and native humor, from the end of the Civil War to the turn of the century. Includes such writers as Twain, James, Howells, Crane, and Norris.

ENG 1617 Modern American Literature 4 Q.H.

Studies major developments in American poetry and fiction from 1900 to 1945. Considers such poets as Frost, Eliot, Stevens, and Moore, and such novelists as Hemingway, Faulkner, Fitzgerald, and Porter.

ENG 1618 Children's Literature 4 Q.H.

Studies the history of children's literature in the English language, with special attention to matters such as genre theory and critical approaches. Includes such works as *Alice in Wonderland*, *Uncle Remus*, *Little Women*, and *The Wizard of Oz*.

ENG 1619 Topics in Children's Literature 4 Q.H.

Focuses closely either on a specific collection of stories (*Grimm's Fairy Tales*), on a specific genre (boys' books), on a problem of evil, or on children's literature as a form of group socialization.

ENG 1620 Major Early British Novelists 4 Q.H.

Traces the development of the English novel from Defoe to Austen in light of new theories of narrative form, psychology, and "realism."

ENG 1621 Major Nineteenth-Century British Novelists 4 Q.H.

Studies theme and form in the major English novels of the nineteenth century, considering such authors as the Brontës, Charles Dickens, George Eliot, and Thomas Hardy.

ENG 1622 Major Twentieth-Century British Novelists 4 Q.H.

Introduces students to British fiction from Joseph Conrad to John Fowles, including such writers as D.H. Lawrence, Virginia Woolf, and others less well-known. The aim of the course is to show how novels as artistic creations shape their own worlds while helping us to understand ourselves.

ENG 1627 Medieval English Literature 4 Q.H.

Surveys the major works of medieval English literature. Works such as *Sir Gawain*, *Piers Plowman*, and *Pearl*.

ENG 1628 Chaucer 4 Q.H.

Surveys the work of Chaucer, with particular emphasis on the *Canterbury Tales*.

ENG 1629 Topics in Chaucer 4 Q.H.

Examines closely a particular work or group of works (such as *Troilus and Criseyde*) or a theme (such as Chaucer's symbolism).

ENG 1630 Milton 4 Q.H.

Concentrates on Milton's *Paradise Lost*, with supplementary readings in his minor poetry and prose.

ENG 1631 Topics in Medieval Literature 4 Q.H.

Focuses on such topics as a genre (romance or debate literature) or on a theme (alchemy or King Arthur).

ENG 1632 Sixteenth-Century Literature 4 Q.H.

Concentrates on sonnets, love lyrics, and erotic narrative poetry, principally by Wyatt, Sidney, Marlow, Spenser, and Shakespeare.

ENG 1637 Seventeenth-Century English Literature 4 Q.H.

Examines major writers of the period, such as Bacon and Jonson, Donne and Herbert, Milton and Dryden.

ENG 1638 Topics in Seventeenth-Century English Literature 4 Q.H.

Examines closely either a single writer or group of writers (congreve or the metaphysical poets) or a topic (the flourishing of satire).

ENG 1639 Eighteenth-Century English Literature 4 Q.H.

Surveys the Augustan age of comic masterpieces. Includes such major writers as Pope, Addison, Stéele, Swift, Goldsmith, Burns, Johnson, and Boswell.

ENG 1640 Topics in Eighteenth-Century Literature 4 Q.H.

Examines closely such topics as a single writer or group of writers (Fielding or the essayists), a genre (satire) or a theme (reason and madness).

ENG 1641 Romantic Poetry 4 Q.H.

Surveys the development of English Romantic poetry, both in its lyric and longer forms, in Blake, Wordsworth, Coleridge, Byron, Shelley, and Keats. Emphasizes problems of belief and the relationship of the individual to the surrounding world of natural, social, and historical process. (V)

ENG 1642 Topics in Romantic Poetry 4 Q.H.

Examines closely a single writer or group of writers (the Keats-Shelley circles) or a theme (poetry and revolution or the creative process).

ENG 1647 Victorian Literature 4 Q.H.

Surveys the major issues and writers of Victorian England, considering such writers as Tennyson and Browning, Dickens and the Brontes, G.M. Hopkins and Oscar Wilde.

ENG 1648 Topics in Victorian Literature 4 Q.H.

Examines closely a single writer or group of writers (Arnold or the fantasists) or a theme (e.g., the movement toward modernism or decadence).

ENG 1649 World Literature I 4 Q.H.

Surveys world literature from the time of the Greeks through the Renaissance, from Homer to Cervantes.

ENG 1650 World Literature II 4 Q.H.

Surveys world literature from the Renaissance through the modern period, from Voltaire to Brecht.

ENG 1651 Masterpieces of World Literature 4 Q.H.

Studies "great books," primarily by non-English authors, that have been central to the development of Western thought and culture. Includes such writers as Homer, Dante, Montaigne, Goethe, and Proust.

ENG 1652 Twentieth-Century English Literature 4 Q.H.

Surveys the best and most interesting work of twentieth-century British writers such as William Butler Yeats, D.H. Lawrence, W.H. Auden, Doris Lessing, and Iris Murdoch.

ENG 1657 Topics in Twentieth-Century English Literature 4 Q.H.

Examines closely the work of a single author or group of authors (Lawrence or post-war authors) or a topic (forms of modernism or imperialism).

ENG 1658 Introduction to Shakespeare 4 Q.H.

Covers a selection of the major plays of Shakespeare, including both tragedies and comedies.

ENG 1659 Shakespeare's Comedies 4 Q.H.

Studies the romantic comedies, problem comedies, and romances, ranging from *The Merchant of Venice* to *The Tempest*.

ENG 1660 Shakespeare's Tragedies 4 Q.H.

Studies the nature of the tragic hero, the questioning of social norms, and the landscape of chaos, ranging from *Julius Caesar* to *Coriolanus*.

ENG 1661 Topics in Shakespeare 4 Q.H.

Examines closely such topics as the history plays,

Shakespeare in performance, the Shakespearean hero, and psychological approaches to Shakespeare.

ENG 1662 The Bible 4 Q.H.

Studies books of both the Old Testament and the New Testament as literature and as history.

ENG 1667 Modern Poetry 4 Q.H.

Studies modernist tradition in American and British poetry. Considers such writers as Yeats, Hardy, Frost, Eliot, Stevens, Pound, Williams, and Cummings. (III)

ENG 1668 Topics in Modern Poetry 4 Q.H.

Focuses on a particular theme such as the poet's use of the past, his or her role in politics, a particular problem in modern poetry, or a particular group of modern poets.

ENG 1669 Studies in English Literature I 4 Q.H.

A seminar on a special topic in English literature, such as color symbolism in literature or John Donne and the metaphysical poets.

ENG 1670 Studies in English Literature II 4 Q.H.

Same as ENG 1669 but with different topics.

ENG 1671 Studies in American Literature I 4 Q.H.

Studies a special topic in American literature, such as the genteel tradition of American humor.

ENG 1672 Studies in American Literature II 4 Q.H.

Same as ENG 1671 but with different topics.

ENG 1677 Contemporary Poetry 4 Q.H.

Studies developments in British and American poetry since 1945. Includes such writers as Plath, Ginsberg, Lowell, Bly, Ashbery, and Heaney. (VI)

ENG 1678 Early African-American Literature 4 Q.H.

A survey of the development and range of black American writers, emphasizing poetry and prose from the post-Civil War period to the present.

ENG 1679 Modern African-American Literature 4 Q.H.

A continuation of ENG 1678.

ENG 1690, ENG 1691 Junior-Senior Seminar (each) 4 Q.H.

(First preference given to students needing the course to complete the major.) Explores an important aspect of literature such as the writer and the audience, the tradition of the new, style and meaning, and the jazz age. Emphasizes independent research in a seminar setting.

ENG 1800, ENG 1801 Freshman English for Honors Students (each) 4 Q.H.

(Prereq. Special placement)
Equivalent of ENG 1110 and ENG 1111 for Honors Program freshmen. Meets during winter and spring terms so that both science and non-science majors in the Honors Program can enroll together. See English Department course listing under ENG 1110, ENG 1111 for description.

ENG 1802, ENG 1803, ENG 1804, ENG 1805
Junior-Senior Honors Program (each) 4 Q.H.
 For details contact the Honors Office, 183 Holmes.

ENG 1806 English Adjunct Mini-Course 1 Q.H.
 For details contact the Honors Office.

ENG 1810, ENG 1811 Directed Study (each) 4 Q.H.

Film

Courses in film are offered in the following departments.

Art: ART 1170 Filmmaking Workshop

ART 1171 Animation Workshop

ART 1233 Contemporary Directions in Photography

ART 1235 History of Film

ART 1236 The American Film

ART 1238 Documentary Film

ART 1800 Directed Study

English: ENG 1288 Film and Text

ENG 1289 Shakespeare on Film

ENG 1290 Topics in Film

ENG 1291 Popular Culture

ENG 1294 Modern Film

History: HST 1494 History and Film

Modern Language: LNF 1321 French Film

Masterpieces

LNF 1550 Introductory Film

Analysis

LNF 1551 Film Theory

LNF 1560 Film and Psychoanalysis

LNF 1550 Spanish Film

Masterpieces

Speech Communications: SPC 1450 Television I

These courses are described in departments to which they belong. For information on the Film Studies Minor, see the section on Interdisciplinary Minors at the beginning of the *Curriculum Guide*, or call the Office of the Film Studies at 437-5163.

Geology

Please note some courses in the College of Arts and Sciences are duplicated in different departments or colleges, or within a department. You may not receive credit for two such courses. If you have a question about whether one course does overlap with another, please consult the departments involved and the Dean's Office *before* taking the course.

Roman numerals at the end of course descriptions refer to *Core Curriculum* categories listed on page 1-2.

GEO 1119 Marine Resources 4 Q.H.

The course provides a qualitative and quantitative survey of renewable and nonrenewable resources from the sea. Aspects covered include offshore oil and gas utilization, marine minerals, and tidal power; coastal zone recreational resources, including polluted beaches and artificial fishing reefs.

GEO 1120 Physical Oceanography 4 Q.H.

The course provides a description of the physical properties and composition of sea water, waves, tides, and ocean currents. The course discusses how these properties are measured by oceanographers and how they influence the earth's environment and climate.

GEO 1121 Biological Oceanography 4 Q.H.*

Topics include the productivity of animal and plant life in the various zones of the ocean; the growing economic importance of the oceans as a source of food for the expanding world population.

GEO 1128 Geological Oceanography 4 Q.H.

In this course the form of the ocean basins and their margins is related to the major processes forming them. Emphasis is placed on local landforms, including New England beaches, spits, barrier islands, and the continental shelf.

* Lab fee required.

GEO 1140 Environmental Geology 4 Q.H.

The course discusses how geologic processes acting at the earth's surface interact with the human environment. Topics include river and ocean flooding, coastal erosion, landslides, land-use planning, and waste disposal.

GEO 1141 Geological Hazards and Resources 4 Q.H.

The course discusses how geologic processes originating deep inside the earth interact with the human environment. Topics include global crystal movements, volcanic and earthquake hazards, mineral resources, coal and oil, geothermal energy, resource management, and disposal of radioactive wastes.

GEO 1154 Planetary Astronomy 4 Q.H.

This course focuses on astronomy of the solar system. Topics include description of the planets and other objects with discussion of how our understanding has evolved from the days of naked-eye observation to the present era of interplanetary probes.

GEO 1156 Observational Astronomy 5 Q.H.

An introduction to systematic observation of the night sky, this course emphasizes observation and description of the patterns and motions of celestial bodies as seen with the unaided eye. Nightly viewing sessions required; supplemented by training sessions in the planetarium.

GEO 1210 North America and the Ice Age 4 Q.H.

This course focuses on description and history of ice-sheets that have advanced and retreated across the northern U.S.A. and Canada during the last three million years. Topics include evidence of past climatic change and predictions of future change, fluctuating sea levels, and the impact of these changes on man and the environment.

GEO 1212 Physical Geology 4 Q.H.

The course offers a systematic study of the materials comprising the earth. Topics emphasized include the processes by which rock is formed, transported, altered, and destroyed, as well as the nature and development of landscape. (II)

GEO 1213 Physical Geology Laboratory 1 Q.H.

(Prereq. GEO 1212; may be taken concurrently) Optional laboratory for GEO 1212, Physical Geology. Laboratory exercises pertain to mineral and rock identification and topographic and geologic map interpretation. Required for geology majors.

GEO 1222 Historical Geology 4 Q.H.

The physical and biological history of the earth is traced through geologic time. Major topics are the origin and evolution of life, mountain building, and continental drift. (II)

GEO 1223 Historical Geology Laboratory 1 Q.H.

(Prereq. GEO 1222; may be taken concurrently) Course offers a study of fossil representatives of major invertebrate phyla, application of fossils to

studies of rock sequences, interpretation of geologic history from geologic maps and sedimentary rocks.

GEO 1250 Advanced General Geology 4 Q.H.

(Prereq. GEO 1212 and GEO 1222) The course offers an introduction to new and advanced concepts, theories, and hypotheses in geology. Students participate actively in discussions, research papers, and individual projects.

GEO 1305 Rock Identification Laboratory 1 Q.H.

(Prereq. GEO 1310; may be taken concurrently) The course provides self-paced laboratory exercises in the identification and classification of common rocks.

GEO 1310 Descriptive Mineralogy 5 Q.H.

(Prereq. Two quarters of chemistry) The course provides a study of mineralogy, including crystallography and physical, chemical, and descriptive mineralogy of the common rock-forming minerals.

GEO 1311 Optical Crystallography 5 Q.H.

(Prereq. GEO 1310) The theory and the practical methods of optical crystallography are studied, including the basic techniques for determining the optical constants of crystals using the polarizing microscope and immersion media.

GEO 1312 Petrography 5 Q.H.

(Prereq. GEO 1311) Topics include description and identification of rocks and rock-forming minerals using thin-sections and the petrographic microscope; discussion of textural and mineralogic relationships.

GEO 1320 Field Geology 4 Q.H.

(Prereq. GEO 1212) The course focuses on field techniques as a working guide for the approach, pursuit, and solution of geologic problems. Among the techniques considered are geologic map construction, stratigraphic section measurement, and field rock description. The laboratory consists of field research at a quarry, roadcut, or other geologic exposure.

GEO 1412 Geochemistry 4 Q.H.

(Prereq. One year of chemistry) The course offers an evaluation of chemical processes important in the various geologic environments and their effects on the development of the lithosphere.

GEO 1414 Igneous and Metamorphic Petrology 5 Q.H.

(Prereq. GEO 1312) The course covers the origin and distribution of igneous and metamorphic rocks as interpreted from their chemistry, mineralogy, and field relationships. Laboratory includes field and petrographic analysis of rock suites.

GEO 1416 Economic Geology 4 Q.H.

(Prereq. Dept. approval) The course focuses on the genesis, associations, and occurrence of the major ore minerals, illustrated

by studies of selected ore bodies of various types throughout the world.

GEO 1418 Structural Geology 5 Q.H.
(Prereq. GEO 1212 and GEO 1213)

Description and origin of large- and small-scale rock structures with emphasis on interpretation of the mechanics of deformation. Field and laboratory analyses of structural problems using maps, models, and rock specimens.

GEO 1420 Geophysics 4 Q.H.
(Prereq. PHY 1231)

This course offers a study of basic techniques of reflection and refraction seismology, gravity, aeromagnetic, and heat-flow techniques and the information they provide on the structure, composition, and dynamics of the earth's interior. Emphasis is placed on the application of these techniques to the search for economic minerals in the earth's crust.

GEO 1424 Stratigraphy 5 Q.H.
(Prereq. GEO 1222)

Course offers study of paleoenvironments and sedimentary-basin analysis based on sedimentary structures, stratigraphic sequences, and fossils. Emphasis is on use of geologic sections, drill-cores, and well-logs. Laboratory interpretation of sedimentary rock suites, maps, and sections.

GEO 1428 Invertebrate Paleontology 5 Q.H.
(Prereq. GEO 1222)

Survey of the major invertebrate phyla preserved in the fossil record. Micro- and macro-evolutionary principles are discussed with consideration of adaptive and functional morphology and the role of paleoenvironments. Laboratory involves description and classification of fossil invertebrates.

GEO 1430 Sedimentation and Sedimentary Environments 5 Q.H.

The course offers a description of the physical processes of sedimentation and their role in the interpretation of modern and ancient sedimentary environments. Laboratory concentrates on the interpretation and description of the physical and textural properties of sediments and sedimentary rocks.

GEO 1432 Sedimentary Petrology 5 Q.H.
(Prereq. GEO 1311)

Topics include origin, classification, and petrography of the major groups of sedimentary rocks. Discussion of the environments of deposition of the nonclastic rocks. Laboratory concentrates on thin-section study of sedimentary rocks.

GEO 1434 Coastal Processes 4 Q.H.
(Prereq. GEO 1212)

The course examines the effect of coastal marine processes and the resultant coastal responses. Topics include the dynamics of waves and currents and the associated erosion, transportation, and deposition of sediment, forming beaches, barrier islands, and cliffed structures.

GEO 1436 Marine Geology 4 Q.H.
(Prereq. GEO 1212)

The balance between major sedimentary and tectonic forces in ocean basins and margins is compared to resulting ocean form. Topics include origin of continental shelves, shelf sedimentation and transport, deep-sea processes and sediments. Resource development of OCS oil, sand and gravel, and manganese nodules is evaluated.

GEO 1440 Geomorphology 4 Q.H.
(Prereq. GEO 1212)

The course focuses on the origin and evolution of landscape features by processes operating at or near the earth's surface.

GEO 1444 Glacial and Pleistocene Geology 4 Q.H.
(Prereq. GEO 1222)

The course covers the processes of ice movement and the characteristics and distribution of erosional and depositional structures associated with past and present glaciers; introduction to Pleistocene chronology and correlations.

GEO 1450 Geology Seminar 4 Q.H.
(Prereq. Major in geology or senior status)

The course offers in-depth study, on an individual or small-group basis, of a selected geologic topic. Both oral and written presentations are required.

GEO 1816, GEO 1817 Undergraduate Research 4 Q.H.
(each)

The course offers independent research on a selected topic under the direct supervision of a faculty member. Open only to juniors and seniors majoring in geology, with the recommendation of the supervising faculty member and of the department.

GEO 1820, GEO 1821 Directed Study 4 Q.H.
(each)

The course offers independent study of a specific topic not normally contained in the regular course offerings, but within the area of competence of a faculty member. Open to all students with the recommendation of a faculty member and departmental approval.

GEO 1824, GEO 1825 Special Studies 1 Q.H.
(each)

The course offers an independent study of a specific topic. Open to all students with the recommendation of a faculty member and departmental approval.

GEO 1830, GEO 1831, GEO 1832, GEO 1833 Junior-Senior Honors Program 4 Q.H.
(each)

For details contact the Honors Office, 183 Holmes.

INT 1215 Into the Ocean World 4 Q.H.

This course is a comprehensive interdisciplinary introduction to the oceans. The seas' complexity and the far-reaching consequences of our interactions with them demand an awareness of the many facets of marine study. The teaching team consists of specialists in the sciences, social sciences, humanities, and arts, each with an interest in marine issues and a

commitment to bridging the gaps among disciplines. The course themes are as broad as the oceans, but when appropriate, we will focus on Boston harbor, a first step into the ocean world for those of us in this area.

INT 1216 A History of Seafaring 4 Q.H.

This course surveys maritime transportation, trade, travel, exploration, and warfare from approximately 3500 B.C. to the end of the wooden boat era in the late nineteenth century. Prior to the widespread application of steam power on land and sea in the nineteenth century, ships were the fastest, safest, and most economical means of transporting large cargoes over long distances. Literary and art history sources are also introduced, along with several films on maritime archaeology.

INT 1217 Water, Water 4 Q.H.

This course is an interdisciplinary introduction to our most precious resource. Water has affected our bodies, our planet, our history, and our culture. How

we manage it will shape our future. Because of increasing demand, waste, and pollution, we are depleting — and risk destroying — the limited supply of usable fresh water. This course will look at water through scientific, historical, and cultural viewpoints, and survey contemporary water problems in all their dimensions — political, economic, and technological. (VI)

INT 1320 Exploring the Humanities Through Film 4 Q.H.

The purpose of this interdisciplinary course is to investigate the ways in which the methods of the humanities can expand one's awareness of the sources, statements, and meanings of popular films. Students will see a series of movies and will analyze and evaluate them in the light of readings, the various approaches presented by faculty members from a number of humanistic disciplines, and their own experience.

History

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HST 1101 Western Civilization 4 Q.H.

This course explores the major ideas and institutions of Western Civilization from ancient times to 1648. (II)

HST 1102 Western Civilization 4 Q.H.

A continuation of HST 1101, covering the period since 1648. (II)

HST 1111 Advanced Western Civilization 4 Q.H.

(Prereq. Invitation of instructor of HST 1101)

Students who demonstrate mastery of HST 1101 through consistently superior work may be invited to work on an individual basis with their instructor. Together they will work out projects relating to the course. (II)

HST 1112 Advanced Western Civilization 4 Q.H.

(Prereq. Invitation of instructor of HST 1102)

Similar to HST 1111 in relation to HST 1101. (II)

HST 1113 Honors Western Civilization 4 Q.H.

Honors Western Civilization is for students invited to participate in the freshman honors program. Coverage is similar to HST 1101. (II)

HST 1114 Honors Western Civilization 4 Q.H.

Honors Western Civilization is for students invited to participate in the freshman honors program. Coverage is similar to HST 1102. (II)

HST 1150 Introduction to Third World History

(Group D) 4 Q.H.

A survey of the history of the leading nations in Asia

and Africa from early civilizations through twentieth-century independence movements and international relations.

HST 1201 The United States to 1877 4 Q.H.

The course focuses on the history of the American people from 1763 to 1877, with an analysis of the American Revolution and the major political, constitutional, diplomatic, economic, and social problems of the new nation. (II)

HST 1202 The United States since 1877 4 Q.H.

The course offers a continuation of the survey of American history, with discussion of the emergence of an industrial economy, an urban society, world responsibility, and expanded federal government. (II)

HST 1241 The Historian's Craft 4 Q.H.

The ways in which the historian studies the past and the nature of historical statements are examined. Problems considered include research techniques, changing conceptions of historical knowledge, and the relation between the historian and the society in which he works. (II)

HST 1251 Social Science Methodology 4 Q.H.

The course offers an introduction to social science methodology and quantitative techniques used in historical analysis.

HST 1311 Ancient Greece (Group A) 4 Q.H.

Topics include the origins and development of Greek civilization; political evolution of Hellenic society from

tribal to city-state organization; growth and application of Greek religious, political, and ethical ideas. (III)

HST 1315 Ancient Rome (Group A) 4 Q.H.

This course examines Roman civilization in two sequences: the rise of Roman power under the Republic and the decline of Roman power under the Empire.

HST 1321 Medieval Europe (Group A) 4 Q.H.

Topics include Europe from the barbarian invasions to the late thirteenth century; the expansion of Christianity and the institutionalization of church and papacy; the emergence of the Holy Roman Empire, England, and France as political units; social, cultural, and economic developments.

HST 1331 Europe in the Age of the Renaissance

(Group A) 4 Q.H.

The course focuses on Europe from 1300 to 1500, when alternatives to medieval institutions became increasingly apparent. Special attention to political, economic, and cultural changes in Italy and northern Europe. (III)

HST 1336 Luther and His Age (Group A) 4 Q.H.

A study of Martin Luther, John Calvin, Henry VIII, Elizabeth I, and their political and religious contemporaries who between 1500 and 1650 overthrew the church's monopoly of religion, forged new relationships between princes and subjects, found new ways to create wealth, challenged the traditional roles of men and women in families and communities, and created new attitudes toward national and international politics.

HST 1351 England to 1688 (Group A) 4 Q.H.

Topics include prehistoric Britain, the Anglo-Saxons, the Normans, the Plantagenets, the Tudors, and the Stuarts, with emphasis on the development of parliamentary institutions until the Glorious Revolution.

HST 1355 Tudor England (Group A) 4 Q.H.

This course offers a study of England from the late fifteenth to the early seventeenth century. Topics include an examination of the Tudor contribution to the development of political and social institutions; the Protestant Reformation and the relation between religion and politics; social and economic changes and their relation to the Elizabethan Renaissance. Particular emphasis is placed on intellectual and cultural developments and England's relation to Europe and the New World.

HST 1358 Stuart England (Group A) 4 Q.H.

Seventeenth-century England, from the reign of James I. Topics include the social, economic, and political backgrounds of the English Civil Wars or Puritan Revolution; the age of Cromwell; the restoration of the Stuarts; the Glorious Revolution; and the end of the Stuart dynasty. Seventeenth-century sources and literature will be used in addition to modern texts.

HST 1390 Population in European History

(Group A or B) 4 Q.H.

This course provides an application of the principles of demography to European history from Roman times

to the present, with attention to the interaction of birth, death, marriage, and migration rates with climate change, epidemic disease, war, economic developments, social upheaval, and political policy.

HST 1391 European Urban History to 1850

(Group A or B) 4 Q.H.

A review of urban development from the Greeks through the emergence of the industrial cities of nineteenth-century Europe. Individual cities such as Rome, Paris, and London are given special study.

HST 1392 Women in European History to 1815

(Group A or B) 4 Q.H.

This course offers an examination of changing sex roles from the early Christian era through the eighteenth century and an assessment of their significance within the social and political context of pre-industrial Europe. Topics include society's attitudes toward the sexes; family structure and marriage patterns; and male and female roles in economic life and in religious and political movements.

HST 1393 History of Science and Technology

(Group A or B) 4 Q.H.

The course offers an interdisciplinary survey of the development of science and technology, integrating theories of the philosophy and sociology of science within a historical framework. Emphasis is placed on the environmental and ideological conditions that contribute to the birth and growth of the various sciences and to the relation between these conditions and technological innovation.

HST 1394 Revolutions (Group A or B) 4 Q.H.

This course provides a review of the important theories of revolution and an analysis of the major early modern and modern revolutions, with a view to evolving a working theory of both political and generational revolutions for the twentieth century.

HST 1395 History of Flight and Space Travel

(Group A, B, or C) 4 Q.H.

Beginning with the dreams of flight of the ancient Greeks and Leonardo da Vinci, the course traces the history of nonpowered flight from the balloon experiments of the Montgolfier brothers to contemporary hang gliders; powered flight from the Wright brothers to the SST; and rocketry and space travel from its earliest beginnings to "Enterprise."

HST 1397 Health and Sickness: Historical

Perspectives (Group A, B, C, or D) 4 Q.H.

A survey of medical theories and the health care systems derived from them, from ancient times to the present. Medical theory and practice as related both to the general history of the time and to the particular political, economic, or social circumstances that influenced institutions for health care.

HST 1407 Europe, 1870-1921 (Group B) 4 Q.H.

The course focuses on Europe from the Franco-Prussian War to the post-World War I settlement: the growing tensions and rivalries and the declining certainties of the end of the nineteenth century, the origins of World War I, the War itself, the Russian Revolution, and the Peace of Paris.

HST 1408 Europe since 1921 (Group B) 4 Q.H.

The course focuses on Europe from the Versailles Settlement: the rise of totalitarianism, the Depression, the crises of liberalism and of the European mind, the Appeasement Era, World War II, the Cold War, the end of colonialism, and Europe today.

HST 1421 England since 1688 (Group B) 4 Q.H.

The course focuses on England from the Glorious Revolution to the present, with emphasis on the development of Parliament, the Industrial Revolution, nineteenth-century reaction and reform, the World Wars, and the rise of socialism.

HST 1424 Victorian England (Group B) 4 Q.H.

The economic, social, and political life of the English people during Victoria's reign. (IV)

HST 1425 The Decline of Great Britain (Group B) 4 Q.H.

The economic, social, and political life of the English people in the twentieth century. (IV)

HST 1428 Irish Civilization (Group B) 4 Q.H.

The course examines the history of Irish civilization from the earliest hero sagas and their impact on Irish values to the Irish independence movement, the prototype and model for many other twentieth-century liberation movements. (IV)

HST 1433 The French Revolution and Napoleon (Group B) 4 Q.H.

The course examines the history of France in the age of the *ancien régime* and the Enlightenment as background for the French Revolution and Napoleon.

HST 1434 Modern France (Group B) 4 Q.H.

A survey of the chief political, social, economic, intellectual, and cultural developments of France from the Revolution to the present. (IV)

HST 1435 History of Modern Italy (Group B) 4 Q.H.

The course offers a survey of the social, economic, and political development of the modern Italian state from the seventeenth century to the present. Emphasis on the problem of modernization.

HST 1441 Hitler's Germany (Group B) 4 Q.H.

This course offers a study of the origins and nature of Hitler's Third Reich, emphasizing the personal lives of Nazi leaders in an attempt to understand how seemingly ordinary people could enthusiastically promote wars of aggression and revel in genocidal policies.

HST 1451 Imperial Russia (Group B) 4 Q.H.

The course focuses on the emergence of Russia as a recognized European power, westernization and expansion in the eighteenth century, the impact of Napoleon, reform and revolution.

HST 1452 Soviet Russia (Group B) 4 Q.H.

The course examines forces molding the history of Russia since 1917, internal developments, and foreign relations. (IV)

HST 1461 Imperialism (Group B) 4 Q.H.

The course examines the rise and fall of the European colonial empires with an emphasis on the period of the late eighteenth to the twentieth century. Attention is given to theories underlying imperial expansion and the impact of imperialism on colonies and colonizers. (III)

HST 1471 Class, Love, and Power in Western Europe (Group B) 4 Q.H.

The course provides an examination of social change in Europe since 1800 with emphasis on the interaction of industrialization, class movements, demographic trends, and revolutionary upheavals.

HST 1472 The Family In European History (Group B) 4 Q.H.

The course offers an examination of issues in the history of the European family from the late Middle Ages to the present. Topics include marriage and sexuality, child-rearing practices, the effect of industrialization and revolution on family life, the Victorian family, and the evolution of the modern family. Students will prepare their own family histories.

HST 1473 Women in Modern Europe (Group B) 4 Q.H.

Examines the situation of women in Western Europe from the French Revolution to the 1950s, focusing on France, Britain, and Germany. Topics explored include: women in revolutionary movements, the impact of industrialization on women and the family, women in the labor movements, the struggle for suffrage, and the effects of world wars on women.

HST 1481 The Culture of Europe (Group B) 4 Q.H.

The course provides an analysis of the culture of the West in the nineteenth and twentieth centuries, focusing on the conjunction of social, cultural, and psychological forces that encouraged or retarded creativity. Attempts will be made to show the interconnections among the arts, social sciences, and sciences within each of the periods covered. (III)

HST 1485 Communism and Revolution (Group B) 4 Q.H.

The course focuses on the history of socialism and revolution from the early nineteenth-century utopias to the New Left of the 1960s.

HST 1491 Modern Western Economic History (Group B or C) 4 Q.H.

The course provides a survey of the development of the Western world examined within the framework of economic theory, with attention to social and political ramifications. (III)

HST 1492 Capitalists and Capitalism (Group B or C) 4 Q.H.

This course provides an examination of capitalism from the Renaissance to the present with attention to the role of major individual capitalists such as the Rothschilds, Krupps, and Rockefellers, and to the

impact of great historical forces such as war, the Protestant Reformation, and imperialism.

HST 1493 Work and Leisure (Group B or C)

4 Q.H.

How we work and how we play are important determinants of how we live. This course examines the historical evolution of contemporary patterns of work and leisure across cultural, sexual, and class lines. Subjects include the impact of machine technology on the worker and the workplace; workers' organizing in unions and professional groups; changing concepts of the use of time; women's work and women's leisure; recreation and sports (both participant and spectator); and the rise of the café and the saloon as sociable institutions. (III)

HST 1494 History and Film (Group B or C)

4 Q.H.

The course offers an exploration of various historical issues as seen through the eyes of historians and filmmakers. Both acted and documentary films are shown in combination with readings from a variety of source and interpretive materials.

HST 1495 Technological Transformations of Society (Groups B, C, or D)

4 Q.H.

The relation between technological innovations and the world in which they take place. Discussion of conditions necessary for discovery and innovation. Impact of technology on political, economic, and social environments.

HST 1496 War In the Twentieth Century

(Group B, C, or D)

4 Q.H.

The course provides an analysis of the causes, prosecutions, and effects of the major wars fought in the twentieth century. The course concentrates on the First and Second World Wars and on the Vietnam War. Using film, simulations, and other materials, classes explore the economic, social, cultural, and psychological impacts of these wars as well as their political, diplomatic, and material aspects.

HST 1497 The World since 1945 (Group B)

4 Q.H.

The course offers a thematic study of issues and movements that have influenced the world's history since the end of the Second World War. Subjects include the Cold War, the end of colonialism, urbanization, technology and ecology, cultures and counter-cultures, the "global village," and the prospect for human liberation.

HST 1501 Topics in American History

(Group C)

4 Q.H.

Special topics in the history of the people of the United States from 1789 to the present.

HST 1510 Colonial America (Group C)

4 Q.H.

The course covers the discovery and exploration of the New World, the settlement of the English colonies on the North American mainland, their development to 1763, and the origin of their clash with England. (III)

HST 1511 The American Revolution (Group C)

4 Q.H.

The course focuses on the coming of the American Revolution, its nature and progress, and its political, economic, and social aftermath.

HST 1514 The Civil War and Reconstruction

(Group C)

4 Q.H.

The course focuses on the Civil War, its coming, its nature and progress, and the aftermath of Reconstruction.

HST 1516 The United States, 1898-1939

(Group C)

4 Q.H.

Social, economic, political, and diplomatic changes from the Progressive Era through the Great Depression and the New Deal.

HST 1517 The United States, 1939-1960

(Group C)

4 Q.H.

Social, economic, political, and diplomatic changes from the start of World War II to the election of John F. Kennedy.

HST 1518 The United States since 1960

(Group C)

4 Q.H.

Social, economic, political, and diplomatic changes in the United States since 1960.

HST 1525 African-American History (Group C)

4 Q.H.

An in-depth examination of the major topics that have shaped the African-American experience. Among the areas to be included are slavery and its effects, the role of the antebellum free black, the Civil War and Reconstruction, black response to the new racism of the late nineteenth century, the W.E.B. DuBois-Booker T. Washington controversy; Marcus Garvey and the shaping of twentieth-century black nationalism, and the changing nature of the black revolution from Martin Luther King to Malcolm X and beyond. (III)

HST 1527 Total Institution and the Individual: An Interdisciplinary Approach (Group C)

4 Q.H.

Using the tools of history, psychology, and sociology, this course examines the varying effects that total institutions (such as prisons, asylums, concentration camps, and the American slave plantation) have had on the human personality. An effort is made to develop a clearer understanding of how the human personality responds to such environments and of their stigmatic effects on the individual.

HST 1528 Crime and Punishment: A History of the Criminal Justice System in America

(Group C)

4 Q.H.

The course examines the evolution of the criminal justice system in the United States, with special emphasis on the impact of English common law, the changing role of law enforcement officers, reform movements, the female offender, the black experience, and the changing meaning of law and order in the United States.

HST 1531 The Industrial Transformation of New England (Group C)**4 Q.H.**

This course examines the process by which New England evolved from an agricultural to an industrial society and the effects of industry's move from the area. Field trips to historical industrial sites are planned.

HST 1532 History of Massachusetts (Group C)**4 Q.H.**

This course focuses on the political, economic, social, and intellectual history of Massachusetts from the Constitution of 1780 to the present. The impact of war, immigration, and industrialization, and the orientation and integration of Massachusetts in the Union are studied.

HST 1533 History of Boston (Group C)**4 Q.H.**

The history of Boston from colonial times to the present, with attention to the topographical growth and the ethnic composition of the city.

HST 1541 The Westward Movement (Group C)**4 Q.H.**

The course examines America's westward movement and its impact on the political, social, and economic life of the nation.

HST 1543 American Urban History (Group C)**4 Q.H.**

The course examines the development of urban society in the United States in the nineteenth and twentieth centuries, with emphasis on the effects of immigration and industrialization upon the politics, thought, and society of American cities.

HST 1552 American Reformers and Reform Movements (Group C)**4 Q.H.**

The course provides an analysis of American reform, especially in the nineteenth century.

HST 1554 Women in America (Group C)**4 Q.H.**

An analysis of women's economic and social roles from the colonial period to the present is offered in this course, with special attention to women's work, their roles in family and community, and nineteenth- and twentieth-century women's rights movements. (III)

HST 1555 American Elites (Group C)**4 Q.H.**

This course examines the life of elite individuals and groups in American society, especially in the nineteenth and twentieth centuries.

HST 1563 History of Sport in America (Group C)**4 Q.H.**

The course provides a history of the major sports and their impact on American life.

HST 1571 American Business History (Group C)**4 Q.H.**

The course examines the rise of business in America, the role of the corporation, horizontal and vertical combinations, business and labor, business and government.

HST 1572 History of the Professions (Group C)**4 Q.H.**

The course examines the evolution of the classic professions of law and medicine in the nineteenth century and the emergence of new professions in engineering, nursing, accounting, and social work. Themes include professional-client, professional-employer, and professional-governmental relations as well as education, professional organizations, and sex-stereotyping.

HST 1575 History of Media in America (Group C)**4 Q.H.**

The course focuses on mass communication in American history, with attention to the role of books, newspapers, magazines, films, radio, and television.

HST 1577 America and the Sea (Group C)**4 Q.H.**

Topics include the history of exploration and discovery of America, the development of fishing, the rise of ocean commerce, the history of the American Navy.

HST 1578 The Automobile In America (Group C)**4 Q.H.**

The course focuses on the impact of the automobile on American society in a historical context. Topics include inquiry into the abandonment of traditional prohibitions of motorized carriages and examination of the use of planning, taxes, and highway policies to foster the use of the automobile. The effect of the car on land use, recreation, and the economy. Contemporary issues such as pollution and energy.

HST 1581 The Growth of American Government to 1935 (Group C)**4 Q.H.**

Examines the expansion of government from the late nineteenth century to the Great Depression of the 1930s, focusing on the growth of the federal government, the presidency from Cleveland to Roosevelt, and new public policies.

HST 1582 The Growth of Government since 1935 (Group C)**4 Q.H.**

Examines the expansion of government from Roosevelt to the present, focusing on the reasons for the growth and its consequences, the development of major public policies, and the transformation of the federal role and politics.

HST 1585 American Diplomatic History (Group C)**4 Q.H.**

The course focuses on the formation and administration of American foreign policy from the Revolution to the present.

HST 1586 American Military History (Group C)**4 Q.H.**

A survey of the complex relation between American society and war, from the age of muskets to the neutron bomb.

HST 1591 China and the United States (Group C or D)**4 Q.H.**

The course offers an examination of the relations of China and the United States, including the period of

the missionaries and opium traders; the era of special privileges; the Open Door policy; the first half of the twentieth century, when China became America's favorite protégé; and the years of strain, warfare, and finally accommodation after the Chinese communists came to power in 1949.

**HST 1592 History of the Vietnam Wars
(Group C or D)**

4 Q.H.

A history of military conflict in Vietnam with attention to the rise of the Viet Minh during World War II, the struggle against the French in the first Indochina war, the impact of the Cold War, and the involvement of the United States after 1950 in Laos and Cambodia as well as Vietnam. Emphasis will be placed on the roles of communism and nationalism in Indochina and on the motives for American intervention. Films revealing American reaction to the escalating conflict will be shown.

HST 1601 Canadian History (Group D)

4 Q.H.

The history of Canada from the time of European settlement to the present, with emphasis on Canadian relations with the United States and on the background of the Quebec separatist movement. (IV)

HST 1604 Modern Latin America (Group D)

4 Q.H.

Latin America from the mid-nineteenth century to the present; dictatorial republics and the continuation of poverty and injustice; the struggles toward democracy; the rise of nationalism; the threat of communism; the relations between the United States and Latin America.

HST 1605 The Modern Caribbean (Group D)

4 Q.H.

Topics include the successful Haitian revolt against slavery, peasant movements after the abolition of slavery, the Marcus Garvey movement, Caribbean music and art, the Cuban revolution, Black Power, and American interventions in the Caribbean from the Spanish-American War to Grenada. This course is the same as AFR 1297.

HST 1612 The Modern Middle East (Group D)

4 Q.H.

Focus of this course is on the Middle East since 1800, with emphasis on the background of present problems. (VI)

HST 1613 Contemporary Middle East (Group D)

4 Q.H.

The course focuses on political, economic, and social developments in the Middle East since the end of World War II.

**HST 1614 The Middle East Today In Fact, Fiction,
and Film (Group D)**

4 Q.H.

A study of social, economic, and political changes and conflict in the lives of ordinary people who have been experiencing the recent crises reported in the media. The course will focus on common experiences among various peoples—Turks, Armenians,

Israelis, Arabs, and Iranians—and will emphasize significant themes: lifestyles, generational conflict, the changing role of women, ethnic or ideological conflict, and the prevalence of identity crises attending cultural and social disruption.

HST 1621 Modern African Civilization (Group D)

4 Q.H.

An introduction to modern Africa in the years from 1800 to 1960, showing how a new African civilization arose out of the conflict-ridden conditions imposed on the old. Themes include economic, social, political, religious, and artistic life, as well as the influences of slavery, colonialism, and nationalism. This course is the same as AFR 1197.

HST 1623 West African History (Group D)

4 Q.H.

A survey of the politics and economics of West Africa from the rise of the Mali Empire to the contemporary problems of national development for the countries from Senegal to Nigeria. This course is the same as AFR 1403.

HST 1624 East African History (Group D)

4 Q.H.

The peoples and cultures of precolonial East Africa, their contacts with each other and the outside world, the impact of British and German colonial rule, the Mau Mau revolt and the struggle for independence, and the colonial heritage in contemporary East Africa. This course is the same as AFR 1401.

HST 1625 South African History (Group D)

4 Q.H.

The historical background to current conflict in the Republic of South Africa and in adjoining Mozambique, Zimbabwe, and Namibia. The rise of the apartheid system—and the opposition and alternatives to it—are examined through the themes of racial conflict, nationalism, and industrialization in this African setting. This course is the same as AFR 1405. (VI)

HST 1633 China since 1850 (Group D)

4 Q.H.

This course focuses on the history of China as it struggled to rid itself of foreign imperialism for one hundred years. Emphasis is placed on the difficult process of gaining strength by modernizing so dominant a traditional culture and on the concepts and policies of China since the communist victory in 1949.

HST 1634 Communist China (Group D)

4 Q.H.

Focus of this course is a close look at the policies and achievements of China since the communists won control in 1949. The major emphasis is upon the background for communist victory, the unique vision of Mao Zetong and his prescriptions for China, and the radical changes since Mao's death and the arrest of the "Gang of Four."

HST 1637 Japan since 1850 (Group D)

4 Q.H.

The course examines the history of Japan since its opening by the West. Emphasis on westernization, the rise of Japan as a world power, and the Japanese experience since the defeat in World War II.

HST 1641 Recent Leaders of Asia (Group D)**4 Q.H.**

This course uses biographies and films to illustrate the lives of Gandhi of India, Ho Ch'i-minh of Vietnam, Mao Zetong of China, and other Asian leaders and the role they played in influencing the revolt against their foreign colonizers. Major themes include the systems of foreign imperialism and the opposition of Asian nationalism.

HST 1644 Third World Women (Group D)**4 Q.H.**

This course provides an exploration of the role of women in the less-developed Third World areas, with special emphasis on factors of change, development, and continuity. (IV)

HST 1652 Islam Resurgent (Group D)**4 Q.H.**

An analysis of what has been called "the militant revival of Islam" as a rallying point for reformist or revolutionary movements in the Muslim world. The course will include little-known Muslim areas outside the Middle East in Africa and Asia. (VI)

HST 1801 Directed Study**4 Q.H.****HST 1805 Approaches to History****4 Q.H.**

Students will undertake a major historical project based on the application of appropriate methodologies and upon the substantive understanding of a single subject chosen by the course instructor and announced in advance of the quarter. The course is rotated among the department's faculty. All history majors are required to take this course, though it is open to all upperclass students. All students must have completed 80 quarter hours of work before taking this course.

HST 1811, HST 1812, HST 1813 Junior-Senior**Honors Program (each) 4 Q.H.**

For details contact the Honors Office, 183 Holmes.

HST 1821 Fieldwork in History I**4 Q.H.**

(Prereq. HST 1101, HST 1102, HST 1201, HST 1202, and 16 Q.H. in other history courses)

This course offers directed work in historical societies, archives, museums, and other historical agencies. Students should consult the Department of History for details.

HST 1822 Fieldwork in History II**4 Q.H.**

(Prereq. HST 1821)

The course offers directed work in historical societies, archives, museums, and other historical agencies. Students should consult the Department of History for details.

INT 1150 Introduction to Women Studies: Image, Myth, and Reality**4 Q.H.**

An introductory course in the study of women in

society, this course encompasses the historical, political, economic, and social processes that have created both the image and reality of women in contemporary society, and offers an overview of the many different disciplinary approaches to the study of women. (II)

INT 1252 Introduction to Irish Studies**4 Q.H.**

Introduction to Irish Studies is taught from the perspective of a number of fields in one-week sequences: art, business, drama, history, literature, music, politics, and sociology. The purpose of the course is to introduce students to the important forces that have helped to shape contemporary Ireland and Irish-American culture.

INT 1215 Into the Ocean World**4 Q.H.**

This course is a comprehensive interdisciplinary introduction to the oceans. The seas' complexity and the far-reaching consequences of our interactions with them demand an awareness of the many facets of marine study. The teaching team consists of specialists in the sciences, social sciences, humanities, and arts, each with an interest in marine issues and a commitment to bridging the gaps among disciplines. The course themes are as broad as the oceans, but when appropriate, we will focus on Boston harbor, a first step into the ocean world for those of us in this area.

INT 1216 A History of Seafaring**4 Q.H.**

This course surveys maritime transportation, trade, travel, exploration, and warfare from approximately 3500 B.C. to the end of the wooden boat era in the late nineteenth century. Prior to the widespread application of steam power on land and sea in the nineteenth century, ships were the fastest, safest, and most economical means of transporting large cargoes over long distances. Literary and art history sources are also introduced, along with several films on maritime archaeology.

INT 1217 Water, Water**4 Q.H.**

This course is an interdisciplinary introduction to our most precious resource. Water has affected our bodies, our planet, our history, and our culture. How we manage it will shape our future. Because of increasing demand, waste, and pollution, we are depleting—and risk destroying—the limited supply of usable fresh water. This course will look at water through scientific, historical, and cultural viewpoints, and survey contemporary water problems in all their dimensions—political, economic, and technological. (VI)

Human Services

Please note that some courses in the College of Arts and Sciences are duplicated in different departments or colleges, or within a department. You may not receive credit for two such courses. If you have questions about whether one course does overlap with another, please consult the departments involved and the Dean's Office before taking the course.

Other courses in the interdisciplinary major in Human Services are listed under the departments in which they are offered, within the College of Arts and Sciences and within the Boston Bouvé College of Human Development Professions.

INT 1330 and INT 1331 Field Experience in Human Services I & II **4 Q.H. each**

Human Services students are required to fulfill two fieldwork placements during the last two years of their program. Placement consists of 150 hours on-site and generally varies according to the students' interest. Examples of placement sites include community centers, nursing homes, vocational workshops, state and federal agencies for children, and recreational facilities. Experiences are supervised by University staff to maximize the students' learning opportunities. (*Junior or Senior status, by permission only*)

INT 1333 Senior Seminar in Human Services

4 Q.H.

Designed for seniors in Human Services, the course examines emerging roles and career options within the human services field. Study will focus on self-examination of attitudes and values affecting delivery of services, exploration of ethical issues and dilemmas relevant to human services, grantsmanship and funding issues, staff supervision and development within human services agencies, and refinement of group leadership skills.

Interdisciplinary Courses

Roman numerals at the end of course descriptions refer to *Core Curriculum* categories listed on pages 1-2.

INT 1100 Introduction to Art, Drama, and Music **4 Q.H.**

This interdisciplinary course offers an integrated approach to three related disciplines: art, drama, and music. Basic vocabulary and analytical techniques are established for each discipline, emphasizing such common elements as color, line, rhythm, texture, and form. Representative works from various periods are examined in the context of the cultures that produced them, and lectures focus on parallels and contrasts among the three disciplines' manifestations of specific trends, principles, and ideals. Lectures, readings, and listening assignments are supplemented by visits to art galleries and attendance at concerts and theatrical performances. (II)

INT 1110 American Musical Theatre **4 Q.H.**

This interdisciplinary course, offered by the department of Drama and Music, traces the development of the American musical from works such as *The Black Crook* to the present. The role of musical theatre as both entertainment and serious art form is considered through an examination of script, score, dance, and design. Works by composers and lyricists such as Bernstein, Rodgers and Hammerstein, the Gershwins, Weill, Lerner and Loewe, and Cole Porter are studied.

INT 1150 Introduction to Women's Studies: Image, Myth and Reality **4 Q.H.**

This is an introductory survey of the issues and methodology involved in the interdisciplinary study of women. Such a survey encompasses the historical,

political, economic, and social processes that have created both the image and the reality of women in society. Guest lecturers provide an overview of the many different disciplinary approaches to the study of women. This course is required for women's studies minors and may be used as either a general elective or, depending upon the discipline of the coordinator, to satisfy specific concentration requirements. (II)

INT 1151, 1152 Women's Studies: Seminars in Research

4 Q.H.

These Interdisciplinary Women's Studies Seminars allow students to address problems in depth by researching a topic of particular interest. Careful development of a research plan is encouraged, and opportunities are provided for sharing work in progress and for exchanging findings. These findings involve little in-class time, but much consultation with appropriate faculty. The final product of seminar work and research is a major paper. Students in the Honors Program may substitute one quarter of honors registration for each seminar, but are still expected to attend the formal sessions of the seminar. These seminars are required for women's studies minors.

INT 1165 Special Topics in Sport and Society

4 Q.H.

Special Topics in Sport and Society is designed to augment a variety of courses offered in the area of sports studies. This course will vary depending on the resources and staff available. Previous offerings have been in Law and Sports and Business and Sports.

INT 1201 An Analysis of American Racism 4 Q.H.

This seminar in contemporary aspects of racism in America discusses the cycle by which racism in our institutions helps form our attitudes and the manner in which our attitudes, in turn, shape our institutions. Emphasis is on the practical, day-to-day aspects of racism, rather than the theoretical and historical.

INT 1215 Into the Ocean World 4 Q.H.

This course is a comprehensive interdisciplinary introduction to the oceans. The seas' complexity and the far-reaching consequences of our interactions with them demand an awareness of the many facets of marine study. The teaching team consists of specialists in the sciences, social sciences, humanities, and arts, each with an interest in marine issues and a commitment to bridging the gaps among disciplines. The course themes are as broad as the oceans, but, when appropriate, we focus on Boston harbor, a first step into the ocean world for those of us in this area.

INT 1216 A History of Seafaring 4 Q.H.

This course surveys maritime transportation, trade, travel, exploration, and warfare from approximately 3500 B.C. to the end of the wooden boat era in the late nineteenth century. Prior to the widespread application of steam power on land and sea in the nineteenth century, ships were the fastest, safest, and most economical means of transporting large cargoes over long distances. Literary and art history sources are also introduced, along with several films on maritime archaeology.

INT 1217 Water, Water 4 Q.H.

This course is an interdisciplinary introduction to our most precious resource. Water has affected our bodies, our planet, our history, and our culture. How we manage it will shape our future. Because of increasing demand, waste, and pollution, we are depleting—and risk destroying—the limited supply of usable fresh water. This course will look at water through scientific, historical, and cultural viewpoints, and survey contemporary water problems in all their dimensions—political, economic, and technological. (VI)

INT 1252 Introduction to Irish Studies 4 Q.H.

Introduction to Irish Studies is offered from the perspective of a number of fields in one-week sequences: art, business, drama, history, literature, music, politics, and sociology. The purpose of the course is to introduce students to the important forces that have helped to shape contemporary Ireland and Irish-American culture.

INT 1320 Exploring the Humanities Through Film 4 Q.H.

The purpose of this interdisciplinary course is to investigate the ways in which the methods of the humanities can expand one's awareness of the sources, statements, and meanings of popular films. Students will see a series of movies and analyze and

evaluate them in the light of readings, the various approaches presented by faculty members from a number of humanistic disciplines, and their own experience.

INT 1340 Cultural Aspects of International Business 4 Q.H.

(Prereq. Middler standing)

Using a managerial perspective, this course covers issues that arise when a firm moves from its home country to a host country that may have a different national culture. Although it will usually assume the perspective of the United States-based firm that operates abroad, it will spend some time on what happens to other national firms operating in the United States and in third-country environments. The way in which "corporate culture" evolves, in the context of national culture and the impact on managers, will be a central issue.

INT 1400 Professional Practices: Individual and Social Dimensions 4 Q.H.

The course explores the dimensions and dilemmas of freedom and responsibility confronting professional people practicing within limits set by socioeconomic conditions, by clients, and by other professionals. Case histories are examined to illustrate the dilemmas professionals face, the choices that are typically made, and the consequences these have on the freedom of the practitioner, and on personal and professional integrity.

INT 1401 Health Professionals: Past, Present, and Future 4 Q.H.

This course focuses on social history of the modern health professions. The course explores long-range patterns in the organization and regulation of the health professions, beginning with the Middle Ages and emphasizing the Jacksonian period, industrialization, modern professional organizations, the growing role of the state, responses of the health professions, and the future of health care in the United States under various corporate/government schemes for reorganization and "accountability".

INT 1580 Physical Chemistry with Biological Applications 4 Q.H.

(Prereq. BIO 1236)

This course examines physiochemical principles as they apply to biological processes. Topics include chemical equilibria, reaction kinetics, basic thermodynamics, oxidation-reduction reactions, bioenergetics, macromolecules in solution, and transport. The approach is quantitative, and problem solving as a tool for learning is emphasized. Basic assumptions and limitations underlying principles are explained; for the most part, however, rigorous derivations are avoided. Applications to basic experimental techniques in biochemistry are made by way of relevant biochemical examples.

Journalism

Please note some courses in the College of Arts and Sciences are duplicated in different departments or colleges, or within a department. You may not receive credit for two such courses. If you have a question about whether one course does overlap with another, please consult the departments involved and the Dean's Office before taking the course.

Roman numerals at the end of course descriptions refer to *Core Curriculum* categories listed on page 1-2.

JRN 1103 Newswriting I **4 Q.H.**
(Prereq. ENG 1275 with grade of C or better)

Functions of the editorial department and procedures in obtaining and writing news stories. Extensive news writing. Introduction to interviewing. Legal issues defined. Typing skills required.

JRN 1104 Newswriting II **4 Q.H.**
(Prereq. JRN 1103 with grade of C or better)

Practice in multi-source and breaking stories. Introduction to government and court reporting. Advanced work in interviewing, and writing under deadline pressure. Discussion of legal issues.

JRN 1206 Editing **4 Q.H.**
(Prereq. JRN 1104 with grade of C or better)

Practice in copy editing and headline writing. Assignments in photo selection, cropping and cutline writing. Introduction to page layout.

JRN 1250 Interpreting the Day's News **4 Q.H.**

Study of the news of the day and the function of the newspaper, news magazine, and news broadcasts in American life. Topics include rights and responsibilities of the press and how news is gathered, processed, and disseminated by the various media. For non-majors as well as majors. (VI)

JRN 1301 Basic Photojournalism **4 Q.H.**
(Prereq. JRN 1103)

Camera and darkroom procedures will be covered along with cropping, assignment techniques, theory, and photo caption methods.

JRN 1305 Techniques of Journalism **4 Q.H.**
(Prereq. JRN 1104)

Writing in-depth and multiple-source stories requiring significant research. Introduction to investigative reporting. Feature writing. Review of legal issues.

JRN 1320 Radio News Gathering and Reporting **4 Q.H.**
(Prereq. JRN 1103)

Writing and editing news for radio, with practice in interviewing, organizing news scripts, and integrating audio materials into broadcast.

JRN 1336 Public Relations Principles **4 Q.H.**
(Prereq. Sophomore standing)

Principles, history, and methods of public relations; processes of influencing public opinion; responsibilities of the public relations practitioner; analyses of public relations programs.

JRN 1350 Advertising Principles **4 Q.H.**
(Prereq. Sophomore standing)

Development, procedures, economic functions, and

responsibilities of advertising: planning, research, production, and other elements that go into successful advertising.

JRN 1421 Television Newswriting **4 Q.H.**
(Prereq. JRN 1103)

Writing for television news as opposed to writing for other news media; importance of the writer-reporter as field-producer and writer-producer; terms and language used in the production of TV news shows. Actual individual production of news shows; field trips to TV stations; guest lecturers from the TV news media.

JRN 1422 Television News Production **4 Q.H.**
(Prereq. JRN 1103 and JRN 1421, or permission of instructor)

Techniques used by the electronic journalist and TV news producer. Students will have the opportunity to build a TV news show. Reporting with portable TV cameras and editing equipment.

JRN 1430 Sports Reporting **4 Q.H.**
(Prereq. JRN 1104)

Principles of news reporting applied to covering men's and women's sports for print and broadcast media. Emphasis is given to using sports reference materials, developing contacts, interviewing, and structuring the sports story. Investigative reporting in sports also is discussed.

JRN 1428 The Role of Journalism in Sports **4 Q.H.**

Analysis of the impact of journalism on the institution of sports in this country and around the world. Sports reporting as a motivator and demotivator from Little League to college and professional levels. Effect of news media coverage on violence in organized sports, on America's physical fitness, and on other aspects of society are covered.

JRN 1432 Local Government Reporting **4 Q.H.**
(Prereq. JRN 1104)

Coverage of town/city government, with emphasis on the "beat" approach to reporting public affairs. Practical, in-the-field experience is emphasized in such projects as town meetings, meetings of boards of selectmen, and other commissions and bodies transacting public business.

JRN 1440 Design and Graphics **4 Q.H.**
(Prereq. JRN 1206)

Layout and design principles applied to newspapers, magazines and other print media. Type faces, copy measuring, dummyming, photo sizing, keeping copy flow charts. Application of design and graphics principles to advertising layout.

JRN 1451 Advertising Copy Writing 4 Q.H.

(Prereq. JRN 1103, JRN 1350)

Theory and techniques of creating advertising copy for newspapers, magazines, radio, television, and direct mail. Fact gathering, copy structure, and advertising design are emphasized.

JRN 1460 Public Relations Problems 4 Q.H.

(Prereq. JRN 1336)

Application of public relations techniques to problems; case studies in industry, labor, education, government, social welfare, and trade associations.

JRN 1501 History of Journalism 4 Q.H.

Development of American journalism from its European and English beginnings. Topics include: the colonial press, the great personal journalists of the nineteenth century, and the impact of major technological changes in mass communications media in the twentieth century. Some writing required.

JRN 1508 Law of the Press 4 Q.H.

Legal problems of libel, invasion of privacy and access to government information; the balance between private rights and the public's "need to know."

JRN 1512 Journalism Ethics and Issues 4 Q.H.

(Prereq. JRN 1501)

Responsibilities of news media; ethical problems confronting decision makers in various journalistic fields: the principles found in codes of the American Society of Newspaper Editors, the Associated Press Managing Editors, the Society of Professional Journalists, and other organizations. Some writing required.

JRN 1522 Magazine Writing 4 Q.H.

(Prereq. JRN 1104 or consent of instructor)

Writing and free-lancing magazine articles; analyzing magazines as markets; selecting the best feature format—how-to-do-it, profile, personal experience, human interest, interpretive pieces, and others.

JRN 1530 Advanced Reporting 4 Q.H.

(Prereq. JRN 1104)

Advanced investigative and team reporting. Series stories and research; precision reporting.

JRN 1552 Advertising Practice 4 Q.H.

(Prereq. JRN 1451)

Preparation of advertising for print and broadcast media, including campaign planning and space and time buying and scheduling. Product research, consumer surveys, and measuring the effects of advertising.

JRN 1561 Public Relations Practice 4 Q.H.

(Prereq. JRN 1103 and JRN 1336)

Practices and techniques employed in the field, including organization of events and functions. Campaign planning, research, and media relationships are studied.

JRN 1575 Publication Production and Management 4 Q.H.

(Prereq. JRN 1206)

Examination of the organizational structure, production methods, and management procedures of print media companies. Interaction of business, advertising, production, and circulation departments.

JRN 1617 The Constitution and Mass Communications 4 Q.H.

The meaning of freedom of the press, explored through study and discussion of the evolving First-Amendment interpretations of the United States Supreme Court.

JRN 1635 Journalism and the Mass Media 4 Q.H.

Seminars featuring well-known professionals from major newspapers, radio-TV stations, wire services, magazines, photography, and public relations. An up-to-date, in-depth exploration of techniques and theories used in various media.

JRN 1870, JRN 1880 Seminar 4 Q.H.

(Prereq. Upperclass standing)

Discussions and readings on topics of current significance in various journalistic fields.

JRN 1890, JRN 1891 Directed Study in Journalism (each) 4 Q.H.**JRN 1892 Topics 4 Q.H.****JRN 1894, JRN 1895, JRN 1896, JRN 1897, JRN 1898 Honors in Journalism (each) 4 Q.H.**

Linguistics

Courses in linguistics are offered in the following departments:

English:ENG 1118 Introduction to Language and Linguistics

ENG 1119 Foundations of the English Language

ENG 1401 Introduction to Syntax

ENG 1402 Grammars of English

ENG 1407 Introduction to Semantics

ENG 1408 Topics in Linguistics

ENG 1690 Seminar in Stylistics

Modern Languages:LNL 1235 Applied Linguistics

LNG 1236 Applied Linguistics II

Philosophy and Religion:PHL 1215 Symbolic Logic
 PHL 1440 Philosophy of Language

Psychology:PSY 1261 Bilingualism
 PSY 1262 Language and Cognition
 PSY 1263 Body Language
 PSY 1264 Animal Communication
 PSY 1361 Introduction to Phonetics
 PSY 1362 Child Language
 PSY 1363 Linguistics of American Sign Language
 PSY 1364 Cognition
 PSY 1365 Language and the Brain
 PSY 1562 Laboratory in Psycholinguistics
 PSY 1661 Seminar in Psycholinguistics
 PSY 1662 Seminar in Cognition

Sociology/Anthropology: SOA 1135 Language and Culture

These courses are described under the different department headings. The interdepartmental major in linguistics and its corresponding minor are described on page 11 of this *Guide*.

Modern Languages

Please note some courses in the College of Arts and Sciences are duplicated in different departments or colleges, or within a department. You may not receive credit for two such courses. If you have a question about whether one course does overlap with another, please consult the departments involved and the Dean's Office *before* taking the course.

Film

The following film courses are offered in the Modern Languages Department. For additional film courses, consult the Film listings.

LNF 1321 French Film Masterpieces 4 Q.H.

An introduction to some of the qualities that have made French Film one of the great national cinemas. The course will focus on both form and content and will relate outstanding directors' major works to the French culture and society of their period. Taught in English; may be taken for French credit if assignments are completed in French. (Also listed as FLM 1321)

LNF 1550 Introductory Film Analysis 4 Q.H.

The course's major goal is the cultivation of critical skills in analyzing the film medium, enabling students to spot and articulate ways in which film shapes their experience. The course will be presented in three units: Film Form, Narrative Form, and Film Style. Form, and its most prevalent manifestation, narrative form, can be said to be the way in which the parts of a film are related to one another to create a whole. Style, including mise-en-scene, cinematography, editing, and sound, will be studied in relation to audience expectations and the constitutive role of film form. The course will be organized around weekly film screenings and individual study of films put on reserve in the video section of the Learning Resource Center of Dodge Library.

LNF 1551 Film Theory 4 Q.H.

A study of the fundamental issues that surround the investigation into the nature and possibilities of film

art. Students will be introduced to a variety of theoretical approaches, including semiotics, auteur theory, psychoanalysis, and feminism. Weekly screenings will focus on two or three topics: a film author (such as Buñuel, Truffaut, or Welles), a well-defined film movement (such as neorealism, the New German cinema, or the French New Wave), or films about filmmaking practice. Students will be asked to read a number of articles and to write a research paper using the resources (including film journals) of Dodge Library. (Also listed as FLM 1221)

LNF 1560 Film and Psychoanalysis 4 Q.H.

This course will explore the nature and possibilities of the psychoanalytic interpretation of film. The course will demonstrate that such an approach offers an additional dimension to the analysis of a work of art. The principal focus will be on elements in the work that are derivative of unconscious processes. Thus, fantasies, dreams, symbolism, and imagery will be given special attention. Material in the works studied that relates to neurotic conflicts, character structure and formation, interpersonal relationships, and distortions in psychological development will be brought into the discussion. Weekly film screenings will be accompanied by lectures and discussions; each student will select one film (placed on reserve in the Learning Resources Center of Dodge Library) for individual study on a topic of his/her choice. (Also listed as FLM 1260)

LNS 1550 Spanish Film Masterpieces 4 Q.H.

Spanish cinema from 1960 to the present, focusing on

recognized masters such as Buñuel and Saura, but including other award-winning films based on novels and events in the Spanish Civil War. The course will stress the way that the realism of the Spanish cinema is combined with surrealistic imagery and metaphor to create a distinctive visual style and content.

The following courses offered in the Department of Modern Languages are conducted in English for possible advanced language credit. Please consult instructor.

LNF 1510 Modern Philosophical French Literature in Translation **4 Q.H.**

Camus and Sartre are considered to have been the spokesmen for their generation's philosophical concerns. Works by these two authors are studied in the course and a working knowledge of existentialism is developed from them. Course given in English.

LNF 1511 The Theme of Solitude In French Literature **4 Q.H.**

Course conducted in English. Texts read in English translation (those who wish to do so may read them in French). The multiple facets of the theme of solitude are traced from the beginnings of French literature to the present. Viewed as a source of both wonder and anguish, solitude is studied in its various manifestations, including banishment, imprisonment, expatriation, and seclusion. The phenomena of moral and spiritual solitude are examined as well. Among authors studied are Charles d'Orleans, Du Bellay, Rousseau, Chateaubriand, Hugo, Verlaine, Mauriac, and Camus.

LNF 1512 Masterpieces of Modern European Fiction **4 Q.H.**

This course is conducted in English and focuses on modern European authors, including Dostoevski, Mann, Kafka, Proust, Gide, and Camus. Their works are viewed as commentaries on their respective societies and, more generally, as investigations of the human condition.

LNF 1513 French Seminar: Voltaire and Rousseau **4 Q.H.**

This course offers an opportunity to study and compare the two great figures of the eighteenth century. Through an analysis of their works, students may determine how, by their contrasting interests, personalities, and views of society, these writers contributed to fundamental changes in the political, philosophical, and literary world of their time—and ours. Class discussion, oral and written reports. Conducted in English. Offered in alternate years.

LNS 1500 Backgrounds in Hispanic Culture I **4 Q.H.**

A multimedia approach is utilized to present the rich panorama of the humanities from Altamira to modern times. A reading knowledge of Spanish is helpful but not required, since the course is conducted in English. Field trips, concerts, guest speakers, and individual study projects enhance this exploration of Spanish creativity.

LNS 1501 Backgrounds in Hispanic Culture II **4 Q.H.**

This course spans the time from pre-Columbian days to the present in Latin America, exploring culture, traditions, and attitudes. A multimedia approach with field trips and guest lecturers. Conducted in English.

LNS 1510 Saints and Sinners: The Vision of Women in the Middle Ages and the Renaissance **4 Q.H.**

Topics include the attainment of and the atonement for love; society's changing attitude toward women as reflected in the literature of the times. Selected fabliaux, short stories, poems, and plays from Boccaccio, Chaucer, Ruiz, Rojas, Machiavelli, Lope de Vega, Calderon, Quevedo, Racine, Middleton, as well as women writers. Reference is made to historical and sociological materials. This course is offered in English. All required readings are in translation.

LNS 1511 Introduction to Caribbean Literature **4 Q.H.**

A comparative introduction to the modern literary traditions of the Spanish-, English-, and French-speaking Caribbean. Authors read include Carpentier (Cuba), Naipaul (Trinidad), Zobel (Martinique), Cardenal (Nicaragua), and more.

LNS 1512 The Don Juan Figure in Literature **4 Q.H.**

A seminar course dealing with the emergence and development of the Don Juan figure in Western literature. The course will be taught in English, although it will focus upon many works which were originally written in other languages (they will be read in English translation). It will attempt to analyze the character of Don Juan, beginning with his first appearance in the theater of seventeenth-century Spain, and following his development well into the twentieth-century. The course will strive to develop an appreciation and understanding of the character of Don Juan through the centuries, and to analyze the similarities and the differences that may be seen in the character from one cultural milieu to another.

LNI 1510 The Works of Dante in Translation I **4 Q.H.**

This course considers briefly the cultural background and various literary schools that influenced Dante. His life, his character, and minor works are discussed. The *Vita Nuova* and the first cantica of the *Divina Commedia*, the "Inferno," are read and analyzed in some detail. This course is intended for students of any background or major. Bilingual texts are used so that students with a background in Italian and others, may refer to the original for added interest and enrichment. Classes are conducted in English.

LNI 1511 The Works of Dante in Translation II **4 Q.H.**

This is a continuation of LNI 1510, but may be taken separately. The other two parts of the *Divina Commedia*, "Purgatorio" and "Paradiso," are studied in

detail. The course is open to anyone. Bilingual texts used. Classes conducted in English.

LNI 1512 Italian Seminar: Pirandello 4 Q.H.

By viewing reality in man's world and man's personality with strikingly new insights, Pirandello contributed a new dimension to our understanding of human nature and brought about significant changes to the traditional conception of the theatre. This course examines the originality and art of Pirandello by a close study of some of his great plays and short stories. Class discussions, oral and written reports. Conducted in English. Offered in alternate years.

LNR 1500 Backgrounds In Russian Culture 4 Q.H.

Designed to offer the student a view of Russian culture and civilization, the course utilizes guest speakers,

films, field trips, and discussions. Conducted in English.

LNR 1510 The Works of Alexander Pushkin in Translation 4 Q.H.

This course offers a survey and analysis in English of Pushkin's artistic prose, lyric poetry, correspondence, friendships, and major literary influences.

LNR 1511 Russian Literature in Translation 4 Q.H.

A companion to LNR 1510, this is a survey and analysis in English of some of the works of Tolstoi, Dostoevski, Chekhov, and others.

Prerequisites listed for Modern Languages are based on current course numbers at Northeastern. If approved by the Department of Modern Languages and the dean's office, equivalent course work acquired elsewhere may be considered acceptable to satisfy these prerequisites. The following courses are offered in English, and no knowledge of a foreign language is required to take them: LNF 1510, LNF 1511, LNF 1512, LNF 1513, LNI 1510, LNI 1511, LNI 1512, LNR 1500, LNR 1510, LNR 1511, LNS 1500, LNS 1501, and LNS 1510. Locate these courses under the appropriate heading for course descriptions. Language majors interested in obtaining major credit for any of these courses should consult their instructor.

Chinese

LNC 1101 Elementary Chinese I 4 Q.H.

This is a course in "Mandarin" Chinese designed to acquaint the student with features of the spoken and written language. Grammar, oral performance, and simple characters are stressed. For students who wish to speak another dialect of Chinese, consult instructor for proper placement.

LNC 1102 Elementary Chinese 4 Q.H.
(Prereq. LNC 1101)

This course is a continuation of LNC 1101. Grammar and spoken and written forms of the language are studied.

LNC 1103 Intermediate Chinese I 4 Q.H.
(Prereq. LNC 1102)

This course is a continuation of LNC 1102. More advanced features of the language. Continued study of characters.

LNC 1104 Intermediate Chinese II 4 Q.H.
(Prereq. LNC 1103)

This course is a continuation of LNC 1103. More advanced work in grammar, conversation, and characters.

LNC 1801 Directed Study in Chinese 4 Q.H.

French

LNF 1101 Elementary French I 4 Q.H.

Designed for students with very little or no prior knowledge of French, this course provides a lively introduction to basic oral expression, listening comprehension, and elementary reading and writing. The audiolingual approach, using practical vocabulary drawn from realistic situations, aims at good pronunciation and ease in response. Each lesson incorporates helpful information about daily life in France

and the varied cultures within the world of French speakers. Laboratory practice complements class-work, enables students to work aloud at their own speed, reinforces their acquisition of essential structures, and acquaints them with a vast library of audiovisual resources.

LNF 1102 Elementary French II 4 Q.H.
(Prereq. LNF 1101)

This course's intent is to continue and broaden beginners' exposure to the "four skills"—oral comprehension, speaking, reading, and writing French—so that the linguistic tools needed to understand and function in foreign contexts—at home, abroad, and in the world of literature and film—may be acquired.

LNF 1103 Intermediate French I 4 Q.H.
(Prereq. LNF 1102 or equiv.)

This course, for students who wish to further their audio-lingual skills and improve their reading and writing, combines a review and continued study of grammar essentials with oral, writing, and language laboratory practice. Varied readings include journalistic, cultural, and modern literary texts. Classes are conducted in French as much as possible so that students may exercise their new skills.

LNF 1104 Intermediate French II 4 Q.H.
(Prereq. LNF 1103)

This course uses the fundamentals of French to promote effective self-expression through speaking and writing and to explore the idiomatic aspects of the language. Through progressive class discussions and oral and written commentaries, students analyze a contemporary French novel or a French cultural reader, screenplay, or collection of short stories. The course strives, first, to help students read and comprehend modern French writing with confidence, and

to be able to talk and write about it in good French; and second, to provide them the opportunity to prepare for advancement to courses beyond the intermediate level.

LNF 1107 Reading French in the Arts and Sciences 4 Q.H.

(Prereq. LNF 1102 or equiv.)

This course is designed for those students who wish to develop their reading skills, without regard to other aspects of the language such as speaking or writing. To this end, the grammar necessary for reading is stressed, together with vocabulary building. Scientific and nonscientific texts are read. This course may also provide assistance to students, graduate and undergraduate, who need to pass a reading examination to fulfill specific degree requirements. However, it should be made clear that this course is not a substitute for LNF 1103 or LNF 1104 (Intermediate French).

LNF 1111 Elementary French for Business 4 Q.H.

This course is similar to LNF 1101, but has added features relevant to business students, such as specialized vocabulary related to the business world, and an immediate introduction to French business texts. LNF 1102 can be taken as a sequel to LNF 1111.

LNF 1201 French Composition and Conversation I 4 Q.H.

This course is designed for qualified students who wish to work on improving their proficiency in speaking and writing French through oral reports, class discussions, compositions, and an advanced review of fundamentals. Grammar work focuses on the students' particular needs as well as the nuances of the language. Varied readings in a range of styles—popular to literary—provide insight into French life and culture. Conducted in French.

LNF 1202 French Composition and Conversation II 4 Q.H.

(Prereq. LNF 1201 or equiv.)

A continuation of LNF 1201, with emphasis on individual work, oral presentations, discussions, related grammar, and analysis of readings. Conducted in French.

LNF 1203 Advanced French Proficiency I 4 Q.H.

(Prereq. LNF 1201 and LNF 1202 or equiv.)

Emphasis is on further vocabulary building and mastery of fine points of grammar through written composition, prepared oral reports, and reading and discussion of articles from current periodicals. Special attention is given to the latest trends in spoken French, the study of idioms and proverbs, as well as selected examples of "argot" (slang).

LNF 1204 Advanced French Proficiency II 4 Q.H.

(Prereq. LNF 1201 and LNF 1202 or equiv.)

This course is the continuation of LNF 1203. In addition to further study in the areas covered in course LNF 1203, each student is expected to pursue one major project throughout the course, to be completed at the end of the quarter—such as planning

and writing an original French magazine with one article to be submitted each week of the term.

LNF 1225 Introduction to the French-Speaking World 4 Q.H.

(Prereq. LNF 1104 or equiv.)

This course offers a cultural introduction to the French-speaking world through the study of various reading selections in the textbook *Le Monde Français*. These selections, which stress vocabulary building and proper usage of a wide variety of grammatical forms, deal with the traditional backgrounds and aspects, as well as the contemporary and "pop" aspects, of the cultural heritage of the world's French speakers. France will be the main, but not the exclusive, focus of this course.

LNF 1231 Masterpieces of French Literature I 4 Q.H.

(Prereq. LNF 1104 or equiv.)

This course provides an introduction to French poetry, theatre (both comedy and tragedy), novels, and autobiographies through the study of key works from the Middle Ages and Renaissance through the Age of Enlightenment. The course includes such writers as Villon, Molière, Racine, Voltaire, and Rousseau. The course, conducted largely in French, aims to acquaint students with a critical approach to reading; to help them improve their reading, speaking, and writing skills; and to apply these new skills to a greater understanding and appreciation of major French contributions to Western culture. Group discussions are encouraged in an effort to bring out the relation between the texts and contemporary issues. (II)

LNF 1232 Masterpieces of French Literature II 4 Q.H.

(Prereq. LNF 1104 or equiv.)

A continuation of LNF 1231, which is not necessarily a prerequisite. The course presents some of the most interesting and significant works of literature from the Romantic Age to the present. Among the readings are an "existential" play by Musset, poetry by Baudelaire and Verlaine, and fiction by Flaubert, Camus, and Robbe-Grillet. For a description of methodology, see LNF 1231. (II)

LNF 1305 French Literature in the Seventeenth Century 4 Q.H.

(Prereq. LNF 1232 or equiv.)

This course presents a study of the nondramatic literature of seventeenth-century France from the baroque through the classical periods. The course studies a rich and diverse body of writing encompassing philosophy, poetry, the table, the novel, and epistolary writing. Among the authors treated are Descartes, Pascal, La Rochefoucauld, La Fontaine, Boileau, Mme. de Sévigné, and Mme. de La Fayette. Offered every other year.

LNF 1306 French Theatre in the Seventeenth Century 4 Q.H.

(Prereq. LNF 1232 or equiv.)

This course offers a study of the dramatic literature of seventeenth-century France, from the baroque

through the classical periods. Tragedy is studied in the works of Corneille and Racine; comedy, in those of Molière. Offered every other year.

LNF 1307 French Literature of the Eighteenth Century I 4 Q.H.

(Prereq. LNF 1232 or equiv.)

The eighteenth century in France, known as the Age of Enlightenment, was an age of challenge to established authority in all areas, and an age of changing ideas and ideals. This intellectual and political vitality is reflected in the representative works of Marivaux, Montesquieu, Prevost, and Voltaire. Class discussions, oral and written reports. Conducted in French, but English is allowed. Offered every other year.

LNF 1308 French Literature of the Eighteenth Century II 4 Q.H.

(Prereq. LNF 1232 or equiv.)

Toward the latter half of the century we begin to see both the achievements brought about by the spirit of enlightenment and at the same time the awakening of the romantic sensibility, particularly in such authors as Diderot, Rousseau, St. Pierre, Laclos, and Beaumarchais. Class discussions, oral and written reports. Conducted in French, but English is allowed. Offered in alternate years.

LNF 1309 French Literature of the Nineteenth Century I 4 Q.H.

(Prereq. LNF 1232 or equiv.)

Romanticism is treated as a major cultural phenomenon affecting man's view of his world and the way he expresses experience. In this context, the course examines romanticism in poetry and drama, as well as its continuation into the realist novel. Among the authors read are Victor Hugo in poetry and the drama, and Honoré de Balzac in the novel. In addition there are selections from other writers who represent aspects of romanticism and realism. Conducted principally in French. Offered every other year.

LNF 1310 French Literature of the Nineteenth Century II 4 Q.H.

(Prereq. LNF 1232 or equiv.)

This course deals with the reaction against romanticism: aestheticism and personal modes of expression in contrast to the enthusiasm of the early romantics. The course deals with a novel by Gustave Flaubert and the verse of Charles Baudelaire in *Les Fleurs du Mal*, and the poets who followed in Baudelaire's footsteps. Flaubert and Baudelaire are seen as precursors of modern literature. Conducted principally in French. Offered every other year.

LNF 1311 French Literature of the Twentieth Century I 4 Q.H.

(Prereq. LNF 1232 or equiv.)

This course offers a study of the major movements in the narrative and dramatic prose writers prior to World War II, including Alain-Fournier, Proust, Claudel, Gide, Mauriac, and Saint Exupéry. Students are required to read a work from each author, discuss it in class, and present oral and written reports. Conducted in French, but English may be used. Offered in alternate years.

LNF 1312 French Literature of the Twentieth Century II 4 Q.H.

(Prereq. LNF 1232 or equiv.)

This course focuses on the trends in postwar fiction, with particular consideration of the struggle to find meaning in an absurd world. Analysis of significant works by Giraudoux, Montherlant, Sartre, Camus, Anouilh, Ionesco, and Beckett. Oral and written reports, class discussions. Conducted in French, but English may be used. Offered in alternate years.

LNF 1315 French Poetry, Past and Present 4 Q.H.

From the Middle Ages to the present day, French poets have derived inspiration from such universal themes as love, nature, and the human condition. This course will provide students with a survey of French poetry through the ages, focusing on representative works of the major French poets. Poems will be studied in their literary and historical context, with an examination of various aspects of French versification. Conducted in French.

LNF 1400 Seminar: Critical Methodology and Practice in French Literature 4 Q.H.

(Prereq. Excellent reading knowledge of French)

The seminar treats one modern French writer in terms of a critical methodology developed in the first part of the seminar based on modern critical practice.

LNF 1401 Seminar: Trends in Modern French Literature 4 Q.H.

(Prereq. Excellent reading knowledge of French)

The seminar examines a trend in modern French literature and develops a critical methodology useful for this analysis.

LNF 1801, LNF 1802, LNF 1803, LNF 1804, LNF 1805 Directed Study (each) 4 Q.H.

Directed Studies offer students a way of going beyond work given in the regular curriculum and may also serve as a means to complete major or minor requirements in certain situations. Directed Studies will not be given in areas adequately covered by existing courses. Priority is given to language majors and to juniors and seniors.

Junior-Senior Honors Program (each) 4 Q.H.

For details contact the Honors Office.

Spanish

Prerequisites listed for Modern Languages are based on current course numbers at Northeastern. Equivalent course work done elsewhere may be considered acceptable to satisfy these prerequisites.

LNS 1101 Elementary Spanish I 4 Q.H.

The course includes presentation of essentials of correct usage through acquisition of basic skills in reading, writing, speaking, and aural comprehension.

LNS 1102 Elementary Spanish II 4 Q.H.

(Prereq. LNS 1101 or equiv.)

Continuation of language instruction with increasing attention to vocabulary and skills relevant to persons who wish to become involved with the Hispanic world.

LNS 1103 Intermediate Spanish I 4 Q.H.
(Prereq. LNS 1102 or equiv.)
Included are completion of basic grammatical usage; reading of contemporary Hispanic plays; oral and written communication based upon assigned readings.

LNS 1104 Intermediate Spanish II 4 Q.H.
(Prereq. LNS 1103 or equiv.)
The course offers intensive reading of topics of current interest; conversation practice utilizing skills acquired in previous course work; and composition practice based upon varied assigned topics.

LNS 1105 Conversational Spanish I 4 Q.H.
(Prereq. LNS 1104 or equiv.; open to nonmajors only)
Emphasis is on helping students develop the ability to speak and comprehend Spanish. Particularly able students may be accepted after having completed only LNS 1103. In this case, LNS 1105 may be used to satisfy the language requirement.

LNS 1106 Conversational Spanish II 4 Q.H.
(Prereq. LNS 1105 or equiv.; open to nonmajors only)
Continuation of LNS 1105, with continuing emphasis on the development of oral facility in Spanish. Particularly able students may be accepted after having completed only LNS 1104.

LNS 1130 Intensive Spanish 8 Q.H.
This course encompasses the same material covered in LNS 1101 and LNS 1102. Students with language-learning ability and a commitment to the study of foreign languages are encouraged to take the course. Students are expected to assimilate the material at an accelerated pace. This is a two-sequence course; students must enroll in both sequences. Satisfactory completion of this course enables the student to take LNS 1103 if he or she wishes.

LNS 1201 Spanish Composition and Conversation I 4 Q.H.
This course offers practice in writing and speaking Spanish, including written and oral resumes, prepared speeches and themes, and impromptu speaking and writing. A review of the more subtle problems of grammar.

LNS 1202 Spanish Composition and Conversation II 4 Q.H.
(Prereq. LNS 1201 or equiv.)
This course offers further practice in oral and written Spanish; continued study of problems of advanced Spanish grammar.

LNS 1203 Advanced Spanish Proficiency I 4 Q.H.
(Prereq. Permission of instructor)
This course is designed for those preparing to enter the teaching profession, as well as qualified advanced students. Advanced elements of Spanish syntax, with emphasis upon achieving superior speaking, reading, and writing skills.

LNS 1204 Advanced Spanish Proficiency II 4 Q.H.
(Prereq. LNS 1203 and permission of instructor)
Continuation of aims and goals of LNS 1203.

LNS 1231 Masterpieces of Spanish Literature I 4 Q.H.
(Prereq. LNS 1104 or equiv.)
An introductory course tracing the development of Spanish literature from its beginnings in the Middle Ages (las jarchas, *El poema del Cid*, *El libro de buen amor*, *La Celestina*, etc.) through the Renaissance and Baroque periods or Golden Age (Garcilaso de la Vega, the picaresque novel, the mystics, Cervantes, Lope de Vega, Calderon, etc.). Classes are conducted in Spanish.

LNS 1232 Masterpieces of Spanish Literature II 4 Q.H.
(Prereq. LNS 1104 or equiv.)
A continuation of LNS 1231, surveying the literature of eighteenth-, nineteenth-, and twentieth-century Spain. Included are the literary movements of romanticism, realism, and the generation of '98. Classes are conducted in Spanish.

LNS 1301 Spanish Literature of the Middle Ages 4 Q.H.
(Prereq. LNS 1232 or equiv.)
The course offers selections from the major works of the Middle Ages, from *El poema del Cid* to the *Libro de buen amor*. Conducted in Spanish.

LNS 1303 Spanish Literature of the Fifteenth and Sixteenth Centuries 4 Q.H.
This course examines selections from the major works of the fifteenth and sixteenth centuries. Some of the works to be considered are *La Celestina*, *Lazarillo de Tormes*, and *El Romancero*. Conducted in Spanish.

LNS 1305 Cervantes and His Times 4 Q.H.
(Prereq. LNS 1232 or equiv.)
The course examines selections from Cervantes' minor works (the *Entremeses* and the *Novelas ejemplares*); emphasis, however, is on *Don Quixote*, Spain's greatest literary masterpiece. Conducted in Spanish.

LNS 1306 Spanish Golden Age Theatre 4 Q.H.
(Prereq. LNS 1232 or equiv.)
The course examines plays by the outstanding dramatists of the seventeenth century: Lope de Vega, Calderon de la Barca, Tirso de Molina, Ruiz de Alarcon, and others. Conducted in Spanish.

LNS 1309 Spanish Literature of the Nineteenth Century I 4 Q.H.
(Prereq. LNS 1232 or equiv.)
The course includes readings in the prose, poetry, and drama of the romantic period, including selections from el Duque de Rivas, Larra, Espronceda, Zorrilla, and Becquer. Conducted in Spanish.

LNS 1310 Spanish Literature of the Nineteenth Century II 4 Q.H.
(Prereq. LNS 1232 or equiv.)
This course offers a study of some of the major novelists of the second half of the nineteenth century, such as J. M. de Pereda, Juan Valera, Emilia Pardo Bazan, and B. Perez Galdos. Conducted in Spanish.

LNS 1311 Spanish Literature of the Twentieth Century I 4 Q.H.

(Prereq. LNS 1232 or equiv.)

The course examines selections from the writings of the Generation of '98: Unamuno, Valle-Inclán, Pío Baroja, Benavente, Azorín, and the Machado brothers.

LNS 1312 Spanish Literature of the Twentieth Century II 4 Q.H.

(Prereq. LNS 1232 or equiv.)

The course focuses on prose and poetry of modern writers, such as Ortega y Gasset, Pérez de Ayala, García Lorca, Juan Ramón Jiménez, Gironella, and José Cela.

LNS 1315 Latin American Literature 4 Q.H.

(Prereq. LNS 1232 or equiv.)

The course focuses on early Latin American literature: the literature of the colonial period and the early nineteenth century, based primarily on selections from an anthology.

LNS 1316 Latin American Literature 4 Q.H.

(Prereq. LNS 1232 or equiv.)

This course focuses on modern Latin American literature; readings from nineteenth- and twentieth-century prose and poetry.

LNS 1400 Spanish Seminar 4 Q.H.

This course is designed primarily for majors who have progressed to the upper-level literature courses in Spanish. However, nonmajors who show exceptional background may be admitted with the instructor's permission. The course focuses upon a narrowly defined theme (i.e., a single author, a single work, or a single theme), which students are asked to explore in depth; students are expected to present a final paper based upon individual research.

LNS 1401 Seminar in Spanish Literature 4 Q.H.

(Prereq. Permission of instructor)

This is an upper-level literature course designed primarily for majors, although nonmajors who show exceptional background in Spanish may be admitted. Students are expected to read a selected group of Galdós's novels, and the class meetings will concentrate on a detailed discussion and analysis of the works read. There are collateral readings as well, and a final paper on a topic to be selected by the student.

LNS 1402 Seminar in the Contemporary Spanish Theatre 4 Q.H.

(Prereq. LNS 1232 or permission of instructor)

In contrast to the typical bourgeois theatre of consumption in Spain, there exists a number of dramatists committed to revealing the tragic social and existential aspects of the human condition. Emphasis is placed on authors such as Vallejo, Sartre, the members of the *generación realista*, and the "underground" playwrights. Classes are conducted in Spanish. Class participation as well as oral and written projects required. Alternates yearly with LNS 1401.

LNS 1801, LNS 1802, LNS 1803, LNS 1804, LNS 1805 Directed Studies (each) 4 Q.H.

Directed Studies offer students a way of going beyond

work given in the regular curriculum and may also serve as a means to complete major or minor requirements in certain situations. Directed Studies will not be given in areas adequately covered by existing courses. Priority is given to language majors and to juniors and seniors.

LNS 1820, LNS 1821, LNS 1822, LNS 1823 Junior-Senior Honors Program (each) 4 Q.H.

For details contact the Honors Office, 183 Holmes.

LNL 1235 Applied Linguistics 4 Q.H.

The course explores the process of language learning and the nature of this experience for infants and adults. Emphasis is on the child's ability to master successfully the complex essentials of its first language by the age of five, and how the development of cognitive capacity and language-learning ability are related. The role of the parent and of the physical environment will also be discussed. Other topics include second-language learning, contrastive analysis, learning English as a second language or dialect, sign language, the significance of "errors," learning strategies, and a survey of language-teaching methods.

German

Prerequisites listed for Modern Languages are based on current course numbers at Northeastern. Equivalent course work done elsewhere will be considered acceptable to satisfy these prerequisites.

LNG 1101 Elementary German I 4 Q.H.

This course is designed to provide instruction in the basic grammatical structure of German through practice in listening comprehension, speaking, reading, and writing. Instruction is provided in the classroom and in the language laboratory. No previous study of German necessary. (Special sections of this course are run for business students.)

LNG 1102 Elementary German II 4 Q.H.

(Prereq. LNG 1101 or equiv.)

A continuation of LNG 1101, this course emphasizes helping students to increase their knowledge of the basic grammatical structure of German and to develop additional flexibility in the four language skills. (Special sections of this course are run for business students.)

LNG 1103 Intermediate German I 4 Q.H.

(Prereq. LNG 1102 or equiv.)

This course offers a comprehensive review and reinforcement of the major aspects of German grammar and usage; continues to explore the four major skills of listening comprehension, speaking, reading, and writing; introduces the student to the reading of contemporary literary texts, including a full-length play—*Biedermann und die Brandstifter*, by the Swiss playwright Max Frisch.

LNG 1104 Intermediate German II 4 Q.H.

(Prereq. LNG 1103 or equiv.)

The course aims at helping students enlarge vocabulary and develop increased flexibility in the four basic language skills. Included are completion of grammar review, continued exposure to modern literary texts.

One full-length play is read—*Der Besuch der alten Dame*, by the contemporary Swiss dramatist Friedrich Dürrenmatt. Successful completion of this course entitles the student to choose from among the upper-level course offerings in the areas of German literature and/or composition and conversation.

LNG 1107 Reading German 4 Q.H.

This course is designed for those students who wish to develop their reading skills, without regard to other aspects of the language, such as speaking or writing. The grammar necessary for reading is stressed, together with vocabulary building; scientific and nonscientific texts are read. This course may provide assistance to students, graduate and undergraduate, who need to pass a reading examination to fulfill specific degree requirements.

LNG 1201 German Composition and Conversation I 4 Q.H.

(Prereq. LNG 1104 or equiv.)

This course strives to develop facility in speaking and writing German and stresses active use of the language. Students are provided an opportunity for practice in listening comprehension through German language films or tape-recorded interviews with native German speakers; expansion of vocabulary through guided group discussions on topics of general interest; and development of language skills in areas of individual interest through preparation of oral reports in German. Compositions are assigned on a weekly basis and grammar is reviewed as needed. Utilization of language laboratory. Recommended for students preparing for co-op in Germany.

LNG 1202 German Composition and Conversation II 4 Q.H.

(Prereq. LNG 1201 or equiv.)

Continuation of German LNG 1201 in content and format with emphasis on independent communication skills. Recommended for students preparing for co-op in Germany.

LNG 1203 Advanced German Proficiency I 4 Q.H.

(Prereq. LNG 1201 and LNG 1202, or permission of instructor)

The course offers intensive training in spoken and written German with the aim of providing students an opportunity to increase vocabulary and develop flexibility in the use of the language. Included are student-led discussions of German society and current affairs based on readings of current journals and periodicals; weekly written assignments; review and practice of grammar where necessary.

LNG 1231 Masterpieces of German Literature I 4 Q.H.

This course includes a survey of the major trends in the development of German literature from the Hildebrandslied to Martin Luther. In addition, reading of selected works of major authors of the twentieth century such as Hauptmann, Kafka, Mann, Brecht, Dürrenmatt, and Boll. Choice of works to be read in a particular term will be based partially on theatre per-

formances or film showings planned in the Boston area. Class attendance of these performances is anticipated. Recommended as an introductory step to literature courses LNG 1307 and above. Offered every other year, alternating with LNG 1232.

LNG 1232 Masterpieces of German Literature II 4 Q.H.

(Prereq. LNG 1104 or equiv.) This course includes a survey of the major trends in the development of German literature from Martin Luther to the present, including selected works of major authors of the nineteenth and twentieth centuries. Choice of works to be read in a particular term will be based partially on theatre performances or film showings planned in the Boston area. Class attendance of these performances is anticipated. Recommended as an introductory step to literature courses LNG 1307 and above. Offered every other year, alternating with LNG 1231. May be taken before LNG 1231.

LNG 1307 Classical Period of German Literature 4 Q.H.

(Prereq. LNG 1232 or equiv.) The course provides background and general survey of the period from 1750 to 1800, with particular emphasis on the works of Lessing and Schiller. Among the dramas read are Lessing's *Minna von Barnhelm* and *Nathan der Weise*, and Schiller's *Maria Stuart* and *Die Jungfrau von Orleans*. Lectures (in German) and reports.

LNG 1308 The Works of Goethe 4 Q.H.

(Prereq. LNG 1232 or equiv.) The course includes drama, prose writing, and lyric poetry of Goethe: *Faust*, Part I; *Hermann Und Dorothea*; *Egmont*; and *Iphigenie auf Tauris*. Lectures (in German) and reports.

LNG 1309 German Literature of the Nineteenth Century 4 Q.H.

(Prereq. LNG 1232 or equiv.) The course offers background and general survey of German literature of the nineteenth century, with particular attention to prose and lyric poetry. The lyric poetry includes poems of all the important romantic poets, beginning with Holderlin, Tieck, Novalis, and extending through Morike. Among the prose works discussed are *Novellen* by Eichendorff, Tieck, Chamisso, Kleist, Fougue, Keller, Meyer, and Ludwig. Lectures (in German) and reports.

LNG 1310 German Drama of the Nineteenth Century 4 Q.H.

(Prereq. LNG 1232 or equiv.) Dramas read are selected from Germany's foremost dramatists of the nineteenth century, including Kleist, Hebbel, Grillparzer, and Ludwig. Lectures (in German) and reports.

LNG 1311 German Literature of the Twentieth Century 4 Q.H.

(Prereq. LNG 1232 or equiv.) The course includes lyric poetry and prose works of important German writers of the twentieth century, including Schnitzler, Hauptmann, Mann, and Kafka. Lectures (in German) and reports.

LNG 1312 German Drama of the Twentieth Century 4 Q.H.

(Prereq. LNG 1232 or equiv.)

Plays are selected from those by important dramatists of the twentieth century, including Schnitzler, Hauptmann, Sudermann, Hofmannsthal, Wedekind, Kaiser, Toller, and Brecht. Lectures (in German) and reports.

LNG 1315 The German Lyric 4 Q.H.

(Prereq. LNG 1232 or equiv.)

The course offers a survey of the German lyric from the twelfth century to the present. Analysis and interpretation of representative selections from major lyric poets such as Walther von der Vogelweide, Gerhard, Fleming, Gryphius, Klopstock, Claudius, Goethe, Schiller, Holderlin, Eichendorff, Brentano, Heine, Morike, Storm, Meyer, Rilke, and Brecht. Background of the development of the German lyric, movements, and types. Class discussions and reports.

LNG 1316 The Dramatic Works of Franz Grillparzer 4 Q.H.

(Prereq. LNG 1232 or equiv.)

The course includes reading, analysis, and interpretation of representative works of Franz Grillparzer, Austria's greatest dramatist: *Sappho, Des Meeres und der Liebe Wellen, Der Traum ein Leben, König Ottokars Glück und Ende*, and the novella, *Der arme Spielmann*. Collateral readings, discussions, and reports.

LNG 1801, LNG 1802, LNG 1803, LNG 1804, LNG 1805 Directed Studies (each) 4 Q.H.

Directed Studies offer students a way of going beyond work given in the regular curriculum and may also serve as a means to complete major or minor requirements in certain situations. Directed Studies will not be given in areas adequately covered by existing courses. Priority is given to language majors and to juniors and seniors.

LNG 1820, LNG 1821, LNG 1822, LNG 1823 Junior-Senior Honors Program (each) 4 Q.H.

For details contact the Honors Office, 183 Holmes.

Russian

Prerequisites listed for Modern Languages are based on current course numbers at Northeastern. Equivalent course work done elsewhere will be considered acceptable to satisfy these prerequisites.

LNR 1101 Elementary Russian I 4 Q.H.

The course includes essentials of grammar, practice in pronunciation, progressive acquisition of a basic vocabulary, idiomatic expressions.

LNR 1102 Elementary Russian II 4 Q.H.

(Prereq. LNR 1101)

Continuation of grammar study; oral and written exercises.

LNR 1103 Intermediate Russian I 4 Q.H.

(Prereq. LNR 1102)

Designed to help further the student's knowledge of Russian through oral and written work; the study of grammar and reading texts of moderate difficulty.

LNR 1104 Intermediate Russian II 4 Q.H.

(Prereq. LNR 1103)

Continuation of work and aims of LNR 1103.

LNR 1107 Scientific Russian 4 Q.H.

(Prereq. LNR 1104 or equiv.)

The course offers readings of Russian texts in mathematics, physics, chemistry, astronomy, biology, and medical science. Designed to help prepare the student for the department reading examination in his/her chosen field. As far as possible, texts are selected on the basis of the students' needs and interests.

LNR 1201 Russian Composition and Conversation I 4 Q.H.

(Prereq. LNR 1104 or equiv.)

Designed to assist students in developing skills in speaking and writing by means of detailed grammar review and extensive use of audio-visual media. Conducted in Russian.

LNR 1202 Russian Composition and Conversation I 4 Q.H.

(Prereq. LNR 1201 or equiv.)

A continuation of LNR 1201 with an increased emphasis on speaking the colloquial Russian idiom. Conducted in Russian.

LNR 1203 Advanced Russian Proficiency I 4 Q.H.

(Prereq. LNR 1202 or equiv.)

Emphasizes speaking and writing skills through the study of Russian word formation and derivation. Weekly compositions or oral reports are required. Conducted in Russian.

LNR 1204 Advanced Russian Proficiency II 4 Q.H.

(Prereq. LNR 1203 or equiv.)

Emphasizes speaking and writing skills through the study and use of Russian idioms and colloquialisms. Conducted in Russian.

LNR 1205 Stylistics and Advanced Grammar Analysis I 4 Q.H.

(Prereq. LNR 1104 or permission of instructor)

Designed for students pursuing a major or minor in the Russian language; focuses on modern usage of the Russian language through newspaper and magazine articles and short stories.

LNR 1206 Stylistics and Advanced Grammar Analysis II 4 Q.H.

(Prereq. LNR 1205 or permission of instructor)

Continues goals of LNR 1205 and also focuses on helping students improve listening comprehension through the use of extensive laboratory work.

LNR 1309 Russian Short Stories of the Nineteenth Century 4 Q.H.

(Prereq. LNR 1104 or equiv.)

The course offers detailed analysis of selected representative short stories read in Russian; study of the development of this genre.

LNR 1315 Russian Expository Prose 4 Q.H.

(Prereq. LNR 1104)

Selected readings of lectures, speeches, essays, and critical studies by outstanding Russian scholars.

LNR 1316 Russian Folklore 4 Q.H.
(Prereq. LNR 1104)
Various genres of Russian folk literature are read in Russian. Readings are supplemented with lectures and tape recordings.

LNR 1317 Russian Poetry 4 Q.H.
(Prereq. LNR 1104)
The major works of important classical and modern poets are read in Russian and analyzed.

LNR 1801, LNR 1802, LNR 1803, LNR 1804, LNR 1805 Directed Studies (each) 4 Q.H.
Directed Studies offer students a way of going beyond work given in the regular curriculum and may also serve as a means to complete major or minor requirements in certain situations. Directed Studies will not be given in areas adequately covered by existing courses. Priority is given to language majors and to juniors and seniors.

LNR 1820, LNR 1821, LNR 1822, LNR 1823 Junior-Senior Honors Program (each) 4 Q.H.
For details contact the Honors Office, 183 Holmes.

Italian

Prerequisites listed for Modern Languages are based on current course numbers at Northeastern. Equivalent course work done elsewhere will be considered acceptable to satisfy these prerequisites.

LNI 1101 Elementary Italian I 4 Q.H.
For the beginner who wants instruction in the essentials of Italian grammar and the opportunity to practice speaking and reading the language.

LNI 1102 Elementary Italian II 4 Q.H.
(Prereq. LNI 1101 or equiv.)
Continued study of grammar and basic language skills. Practice in more advanced conversation and reading.

LNI 1103 Intermediate Italian I 4 Q.H.
(Prereq. LNI 1102 or equiv.)
Review of grammar. Progressively more intensive practice in oral and written communication. Reading will be from selected modern texts.

LNI 1104 Intermediate Italian II 4 Q.H.
(Prereq. LNI 1103 or equiv.)
Review of grammatical difficulties, with attention given to current idiomatic forms. Greater emphasis on self-expression. Reading of short stories or a modern novel.

LNI 1201 Italian Composition and Conversation I 4 Q.H.
(Prereq. LNI 1104 or equiv.)
For students who have mastered the fundamentals of the language. There will be no study of grammar as such. The course aims at helping students strengthen speaking and writing ability through an analysis of the language, oral and written reports, and general discussions on a variety of topics. Conducted entirely in Italian.

LNI 1202 Italian Composition and Conversation II 4 Q.H.
(Prereq. LNI 1201 or equiv.)
Continuation of LNI 1201, with stress on individual work, free discussions, and compositions. Conducted entirely in Italian.

LNI 1231 Masterpieces of Italian Literature I 4 Q.H.
(Prereq. LNI 1104 or equiv.)
Introductory course in Italian literature covering the *Trecento* to the seventeenth century. An analysis will be made of major trends and writers beginning with the *doice stil nuovo*, Dante's *Vita Nuova*, and continuing with readings from Petrarca's *Canzoniere*, Boccaccio's *Decameron*, and Machiavelli's *La Mandragola*. Discussion of the readings, oral and written reports. Conducted basically in Italian, but students are allowed to express themselves in English.

LNI 1232 Masterpieces of Italian Literature II 4 Q.H.
(Prereq. LNI 1104 or equiv.)

Continuation of LNI 1231, but may be taken separately. This course concentrates on authors from the eighteenth to the twentieth centuries, such as Goldoni, Leopardi, Verga, Pirandello, Moravia, Levi, and Buzzati. A novel, a play, or poetry selections from each author will be discussed. Oral and written reports. Conducted basically in Italian, but students may use English.

LNI 1311 Italian Literature of the Twentieth Century I 4 Q.H.
(Prereq. LNI 1232 or equiv.)
Reading and discussion of some of the novels, plays, and poems from a variety of literary trends and styles that evolved between the turn of the century and World War II. Among the authors studied are Verga, Pascoli, D'Annunzio, Pirandello, Deledda, and Svevo. Oral and written reports. The course will be conducted basically in Italian, but students may use English. Offered in alternate years.

LNI 1312 Italian Literature of the Twentieth Century II 4 Q.H.
(Prereq. LNI 1232 or equiv.)
The postwar period to the present. Many important authors have arisen since the early forties, and their books reflect the preoccupations, moods, and aspirations of our changing times. Among the writers considered in this course are Moravia, Silone, Vittorini, Pavese, Guareschi, Buzzati, Sciascia, Ungaretti, Montale, and Quasimodo. Oral and written reports are required. English may be used, but the course will be conducted basically in Italian. Offered in alternate years.

LNI 1801, LNI 1802, LNI 1803, LNI 1804, LNI 1805 Directed Studies (each) 4 Q.H.
Directed Studies offer students a way of going beyond work given in the regular curriculum and may also serve as a means to complete major or minor requirements in certain situations. Directed Studies will not be given in areas adequately covered by existing

courses. Priority is given to language majors and to juniors and seniors.

LNI 1820, LNI 1821, LNI 1822, LNI 1823

Junior-Senior Honors Program (each) 4 Q.H.

For details contact the Honors Office, 183 Holmes.

Mathematics

The Mathematics Department offers several sequences of courses which may overlap in content. Please consult the Math Department if you have any question regarding course content. You will not receive credit for two courses which overlap in content.

Roman numerals at the end of course descriptions refer to *Core Curriculum* categories listed on pages 1 and 2.

MTH 1000 Mathematics Preliminaries I 4 Q.H.

(Prereq. Permission of course coordinator)

The purpose of this course is to supply, together with MTH 1010, the high school math background necessary for a student to survive in MTH 1101, MTH 1106, or MTH 1113. Material includes the arithmetic of signed numbers, fractions, decimals, and percents; algebraic manipulation and solution of simple equations; elementary word problems; laws of exponents.

MTH 1010 Mathematics Preliminaries II 4 Q.H.

The purpose of this course is to supply, together with MTH 1000, the high school math background necessary for a student to survive in MTH 1101, MTH 1106, or MTH 1113. Topics include quadratic equations and systems of equations; graphing (including slope of a line and vertex of a parabola), more word problems; either logarithms, trigonometry, or some of both at the instructor's discretion; in winter and spring quarters the material covered in MTH 1000 will be assumed; in the fall quarter there is an overlap with MTH 1000 on solving equations, word problems, and laws of exponents.

MTH 1101 Basic Mathematics 4 Q.H.

The course examines systems of linear equations and their graphs. Graphing systems of linear inequalities in two variables with application to linear programming. Introduction to matrices, matrix multiplication, and vectors. (I)

MTH 1103 Basic Mathematics 4 Q.H.

Topics include introduction to probability, sample spaces with equiprobable events, permutations and combinations, conditional probability. Random variables, introduction to Markov processes.

MTH 1106 Fundamentals of Mathematics 4 Q.H.

This course examines how to solve various kinds of algebraic equations: linear, quadratic, and linear systems in two and three unknowns. Applications to word problems such as motion, mixture, and variation problems. The concept of function, graphs, line slopes, and graphs of polynomials. Some elementary trigonometry and vectors in the plane.

MTH 1107 Functions and Basic Calculus 4 Q.H.

The course provides an introduction to differential calculus. Elementary rules of differentiation with application to graph sketching and to maximum and

minimum problems. Exponential and logarithmic functions with applications to problems in compound interest, population growth, and radioactive decay. (I)

MTH 1108 Calculus 4 Q.H.

The course offers a review and continuation of differential calculus, graphing and differentiation of trigonometric functions, introduction to integral calculus with applications to geometric problems and to differential equations.

MTH 1113 College Mathematics for Business

4 Q.H.

Topics include sets, rectangular coordinates and graphs, functions and functional notation, linear and quadratic functions, exponential and logarithmic functions, systems of linear equations, summations, inequalities, permutations and combinations, elementary probability concepts, arithmetic and geometric progressions, simple and compound interest annuities.

MTH 1114 Fundamentals of Mathematics 4 Q.H.

(Prereq. MTH 1113 or equiv.)

Topics include matrices; Gaussian elimination inverses of matrices; systems of linear inequalities; feasible regions; graphical solution of linear programming problems; limits; derivatives; differentiation of polynomials; differentiation of exponential and logarithmic functions; maxima, minima, and points of inflection; optimization in nonlinear problems; marginal analysis of cost revenue and profit functions.

MTH 1120, MTH 1121 Calculus (each) 6 Q.H.

This course sequence is designed to assist students in overcoming deficiencies in precalculus mathematics without losing ground in the MTH 1123 sequence. The two quarters review high school algebra, introduce trigonometric functions, and cover the material in MTH 1123 and MTH 1124. The five meetings per week include lecture and homework review sessions. Students are placed in this course by request or on the basis of their College Board scores and the results of an orientation-week diagnostic test.

MTH 1123 Calculus 4 Q.H.

This is a first course in calculus in one variable, primarily for engineering students. Functions, graphs, lines, limits, continuity, derivatives, chain rule, curve sketching, related rates, and maxima-minima problems are included.

MTH 1124 Calculus**4 Q.H.**

Continuation of MTH 1123. The integral in one variable with applications to areas, volumes, lengths, work, pressure, etc. Trigonometric, exponential, and logarithmic functions.

MTH 1125 Calculus**4 Q.H.**

Continuation of MTH 1124. Further techniques of integration, elementary differential equations, polar coordinates, and further applications are included.

MTH 1128 Calculus**4 Q.H.**

Continuation of MTH 1124. Further techniques of integration, graphs in two and three dimensions, double and triple integrals, applications.

MTH 1133 Calculus for Biology Majors I**4 Q.H.**

This is a first course in calculus with applications to biology, ecology, and medicine. Differentiation, curve sketching, anti-differentiation, and exponential functions are included.

MTH 1134 Calculus for Biology Majors II**4 Q.H.**

(Prereq. MTH 1133)

Continuation of MTH 1133. Topics include exponential growth and decay; integration and area; rules for differentiation; and functions of several variables, with LaGrange multipliers, total differentials, and the method of least squares.

MTH 1135 Calculus for Biology Majors III**4 Q.H.**

(Prereq. MTH 1134)

Continuation of MTH 1134. Topics include the natural logarithm; trigonometric functions; techniques of integration, including numerical methods and differential equations, with separation of variables and qualitative methods.

MTH 1137 Discrete Mathematics I**4 Q.H.**

(Prereq. MTH 1123)

Proof methods: induction, case analysis, contradiction. Binary, octal and hexadecimal numbers. Modular arithmetic. Sets, relations, equivalences, functions. Combinations, permutations, elementary counting, and discrete probability. Elementary graph theory.

MTH 1143 Calculus**5 Q.H.**

This course is designed primarily for mathematics, physics, and chemistry majors. Syllabus for MTH 1143 through 1145 includes derivatives and integrals of one-variable functions; applications to curve sketching, maxima and minima problems, area, moments, simple volumes, etc.; approximation methods, including numerical integration, root finding, Taylor series, and power series. Students will also be required to master the use of the computer to make value tables and plot curves and to implement simple numerical algorithms.

MTH 1144 Calculus II**5 Q.H.**

(Prereq. MTH 1143)

Continuation of MTH 1143.

MTH 1145 Calculus III**5 Q.H.**

(Prereq. MTH 1144)

Continuation of MTH 1144

MTH 1150 Probability, Statistics, and the Computer

(Prereq. Nonmath majors)

4 Q.H.

The course presents a computer-oriented introduction to statistical methods, with applications in the social and life sciences. Topics include descriptive statistics, elementary probability, correlation and regression, and the fundamentals of statistical inference (confidence intervals and hypothesis testing) with a minimum of mathematical derivations. A statistical computer package such as MINITAB or SPSS is used in solving supplementary problems. (I)

MTH 1152 Statistical Thinking**4 Q.H.**

An introduction to the statistical style of thinking for students without mathematical sophistication or who ordinarily don't like mathematics. Readings will be assigned from a wide variety of sources. Extensive class discussion and homework problems (some on a computer) will teach the students to use statistics and to critically evaluate the use of statistics by others. Topics include descriptive statistics, statistical tests, confidence intervals, regression, and sampling. (II)

MTH 1160 Introduction to Computers I**4 Q.H.**

(Prereq. Nonmath majors)

This course has two goals: (1) to introduce computers and consider their applications, and (2) to introduce computer programming so that the uses and limitations of computers can be discussed intelligently. Small programs will be written and run. Applications such as sorting, searching, data processing, simulation, and artificial intelligence will be covered.

MTH 1163 Introduction to Computers and Computation**4 Q.H.**

Course offers an introduction to problem solving with the use of computers. Students are expected to design, write, debug, and test programs in BASIC programming language. Course includes application of programming to a wide variety of problems, including statistical analysis of data, plotting, artificial intelligence, and text processing.

MTH 1172 Introduction to Computer Science**4 Q.H.**

This is a second course in programming, dealing with problem solving in the context of computing. Structured programming using PASCAL language. Correctness, clarity, and reliability of programs are stressed. (II)

MTH 1183 Mainstreams of Mathematics**4 Q.H.**

This course traces the development of mathematical thought by focusing on some of its most exciting aspects. Individual projects supplement lectures and readings, enabling students with diverse backgrounds to rediscover mathematics. The level is non-technical; no more than high school algebra and geometry is assumed. Topics vary from year to year, but may include mathematical games, a wide variety of puzzles, ancient number systems, logic and computers, calculus and the scientific revolution, art and symmetry. The course may be used to satisfy the math-science distribution requirement but not any major requirements.

MTH 1188 Problem Solving and Pre-Calculus I**6 Q.H.**

The purpose of this six-credit course is to develop basic algebraic and problem-solving skills. Students indicating these needs are enrolled in this course rather than the four-credit MTH 1191. Together with MTH 1189, which follows this course, the goal is to prepare the student for calculus (MTH 1193). Topics include: writing equations and relating word problems to equations; plotting linear equations; word problems involving algebraic fractions; algebraic operations; radicals; inequalities; functional notation and the graphing of functions.

MTH 1189 Problem Solving and Pre-Calculus II**6 Q.H.**

This course is a continuation of MTH 1188. Topics include: functions and graphing; composite functions and inverse functions; logarithmic and exponential functions and equations; trigonometric functions and their graphs; solving trigonometric problems; trigonometric identities; vectors in two dimension.

MTH 1191 College Algebra and Trigonometry I

(Prereq. B.E.T. majors only)

4 Q.H.

Topics include fundamental algebraic operations, complex numbers, radicals and exponents, functions, linear and quadratic equations, irrational equations, inequalities, variation, roots of polynomial equations.

MTH 1192 College Algebra and Trigonometry II

(Prereq. MTH 1191; B.E.T. majors only)

4 Q.H.

Topics include logarithms; trigonometric functions of angles in degrees and radians, trigonometric identities and equations, right triangles, oblique triangles, complex numbers in trigonometric form, systems of equations, determinants.

MTH 1193 Calculus I**4 Q.H.**

(Prereq. MTH 1192; B.E.T. majors only)

Plane analytic geometry; differentiation of algebraic functions; rate, motion, maximum and minimum problems; derivatives of higher order; curve sketching; basics in functions, limits, and continuity. (Not equivalent to MTH 1123)

MTH 1194 Calculus A**4 Q.H.**

(Prereq. MTH 1193; B.E.T. majors only)

Topics include applications of derivatives to curve sketching; antidifferentiation; the definite integral, with applications; calculus of nonalgebraic functions—logarithmic, exponential, and trigonometric; calculus of inverse trigonometric functions; techniques of integration; indeterminate forms; L'Hospital's rule. (Not equivalent to MTH 1124)

MTH 1195 Calculus B**4 Q.H.**

(Prereq. MTH 1193; B.E.T. majors only)

Topics include polar coordinates, vectors in a plane, calculus of functions of several variables, partial differentiation, multiple integrals, infinite series, vector analysis, introduction to differential equations. (Not equivalent to MTH 1125.)

MTH 1196 Differential Equations**4 Q.H.**

(Prereq. MTH 1195)

Topics include ordinary differential equations—standard types of the first order, linear differential equations, especially with constant coefficients; Laplace transforms; series solutions of differential equations; Fourier series and orthogonal functions.

MTH 1203 History of Mathematics**4 Q.H.**

Topics include development of the various branches of mathematics; lives of outstanding mathematicians; growth of mathematical knowledge and its relation to culture. (III)

MTH 1212 Linear Programming**4 Q.H.**

(Prereq. one year of college mathematics)

Introduction to concepts and techniques of linear programming, game theory, discrete modeling (shortest path, minimum spanning tree). Application to economics, social sciences, and other related fields. (II)

MTH 1221 Mathematical Analysis IV-V**5 Q.H.**

(Prereq. Freshman calculus or equiv.)

This course is designed to help prepare transfer students for numerical analysis and differential equations. Calculus of one and several variables. Linear algebra, vector-valued functions, multiple integration, infinite series, Taylor's theorem, and complex numbers.

MTH 1223 Calculus**4 Q.H.**

(Prereq. MTH 1125)

Topics include solid analytic geometry, vectors in 3-space, partial derivatives with applications, multiple integration.

MTH 1225 Mathematical Analysis**4 Q.H.**

(Prereq. MTH 1128)

This course examines ordinary differential equations, with emphasis on methods of solution. Includes first-order equations, LaPlace transform, second-order linear equations, and systems of first-order linear equations. (Intended primarily for engineering students.)

MTH 1226 Mathematical Analysis**4 Q.H.**

(Prereq. MTH 1225)

Topics include numerical methods for solving ordinary differential equations, Fourier series, and selected partial differential equations by separation of variables. (Intended primarily for engineering students.)

MTH 1227 Calculus**4 Q.H.**

(Prereq. MTH 1128)

Topics include solid analytical geometric, vector methods, parametrized curves, surfaces, partial differential with applications, notions of linear algebra.

MTH 1228 Calculus**4 Q.H.**

(Prereq. MTH 1227)

Topics include infinite series, Taylor series, convergence of power series, Fourier series, approximation methods, various numerical techniques. (Not for ECE students)

MTH 1233 Mathematical Models in the Life Sciences**4 Q.H.**

(Prereq. One year of calculus)

The focus of this course is the derivation and solution of mathematical models in biology, psychology, and the social sciences. Topics may include population dynamics, diffusion processes, pollution control systems, neural networks, and mathematical genetics.

MTH 1237 Discrete Mathematics II**4 Q.H.**

(Prereq. MTH 1137, MTH 1223)

Elementary number and group theory. Introduction to fields. Finite fields. Coding Theory, Hamming and BCH codes. Counting arguments.

MTH 1238 Combinatorial Mathematics**4 Q.H.**

(Prereq. two courses in Calculus)

This is designed to be a transitional course from calculus to more traditional mathematics courses. It explores various techniques for counting, such as permutations, combinations, inclusion-exclusion, Polya enumeration, and the mathematical formulations necessary for these techniques, including elementary group theory and equivalence relations.

MTH 1243 Calculus and Linear Methods I**4 Q.H.**

(Prereq. MTH 1145)

The course focuses on methods of calculus and vector analysis to study curves, surfaces, and functions of several variables. Topics include parameterization of lines and planes, tangents and normal vectors, partial derivatives, maxima and minima problems, linear approximations, and tangent planes. Some linear algebra.

MTH 1244 Calculus and Linear Methods II**4 Q.H.**

(Prereq. MTH 1243)

Continuation of MTH 1243. Topics include multiple integration, line integrals, and exact differentials; various forms of Stoke's theorem; more linear algebra.

MTH 1245 Differential Equations and Linear Methods I**4 Q.H.**

The course focuses on ordinary differential equations and linear algebra. First-order equations, higher- (primarily second-) order linear differential equations, systems of linear differential equations. Linear algebra includes eigenvalues and eigenvectors primarily for two-dimensional systems. Applications of ordinary differential equations.

MTH 1246 Differential Equations and Linear Methods II**4 Q.H.**

(Prereq. MTH 1245)

Topics include analysis of linear partial differential equations (wave equations, heat equation and potential equation). Ordinary differential equations with boundary values. Fourier analysis, orthogonal functions. Also, numerical methods and other topics in ordinary differential equations.

MTH 1301 Linear Algebra I**4 Q.H.**

(Prereq. MTH 1244 or equivalent)

Topics include vectors and vector spaces, including function spaces, subspaces. Lengths, angles, scalar

products; volumes, determinants. Linear independence and dependence, dimension, linear and affine maps, kernel and image. Algorithms: row operations, double triangular form, inversion. Introduction to linear maps. In particular, characteristic polynomials, eigenvalues, and eigenvectors in low dimensions.

Note: Students who have not completed MTH 1143-TH 1246 should inform the course instructor of their backgrounds.

MTH 1302 Linear Algebra II**4 Q.H.**

(Prereq. MTH 1301)

The course focuses on detailed study of linear maps. Part I: Symmetric maps and quadratic forms. Isometries and skew-symmetric maps. Decomposition of general linear maps using symmetric maps and isometries. Part II: Polynomials evaluated on linear maps. Generalized eigenspaces. Jordan form. As time permits, an introduction to computational methods with emphasis both on geometry underlying algorithms and on practical advantages and limitations. A survey of related areas in mathematics in which linear ideas play a role is included.

Note: Upper-level students who have not completed the MTH 1243-MTH 1246 program may take MTH 1301-MTH 1302. Such students should inform the course instructor regarding their particular backgrounds.

MTH 1311 Analysis I**4 Q.H.**

(Prereq. MTH 1246 or permission of instructor)

The course examines the theoretical foundations of calculus: limits, measure, continuity, and related concepts. Analysis I and II are intended to serve as a bridge between the MTH 1243-MTH 1246 calculus sequence and the more advanced analysis courses, such as MTH 1347-MTH 1348, MTH 1351, and MTH 1370-MTH 1371.

MTH 1312 Analysis II**4 Q.H.**

(Prereq. MTH 1311)

Continuation of MTH 1311. The course focuses on calculus, applying the concepts introduced in Analysis I.

MTH 1321 Introduction to Groups and Their Applications**4 Q.H.**

Topics include examples of groups (symmetry groups, permutation groups, matrix groups, cyclic groups) and their subgroups. Finite groups and orders of subgroups. Homomorphisms and normal subgroups. Applications to some of the following, depending on time and interest: geometry, number theory, crystallography, physics, and combinatorics.

MTH 1322 Topics in Rings, Fields, and Number Theory**4 Q.H.**

Topics include algebraic properties of the integers and rational, real, and complex numbers. Commutative rings, ideals, integral domains, and other quotient fields. Polynomial rings. Quadratic extension fields. Gaussian integers. Other topics as time permits.

MTH 1327 Optimization and Mathematical Game Theory 4 Q.H.

(Prereq. Some linear algebra, e.g., MTH 1301; or permission of instructor.)

Topics include convex sets in Euclidean n -space, linear and nonlinear programming, zero-sum games, dynamic programming. Students are encouraged to program selected solution methods for a computer.

MTH 1330 Number Theory 4 Q.H.

(Prereq. MTH 1301 or permission of instructor)

An introduction to the elementary methods of analytic number theory, this course focuses on divisibility, congruences, arithmetical and multiplicative functions, quadratic reciprocity, and equivalent formulations of the prime number theorem.

MTH 1337 Foundations of Mathematics 4 Q.H.

This course studies the following topics and the shifts in perspective that their development brought about: (1) the disputes over the basis for calculus; (2) twentieth-century discoveries in mathematical logic; and (3) the advent of the computer. (V)

MTH 1338 Foundations of Mathematics 4 Q.H.

Course material includes set theory; rules for set formation; the axiom of choice and its role in mathematics; transfinite cardinal and ordinal numbers and their arithmetic; axiomatizations of set theory.

MTH 1347 Applied Analysis 4 Q.H.

(Prereq. MTH 1246 or permission of instructor)

Selected topics are chosen to demonstrate the application of mathematics to interesting physical and biological problems. Methods chosen from ordinary and partial differential equations, calculus of variations, Laplace transforms, singular perturbations, special functions, dimensional analysis, and other techniques of applied mathematics.

MTH 1348 Applied Analysis 4 Q.H.

(Prereq. MTH 1347)

Continuation of MTH 1347.

MTH 1349 Numerical Analysis 4 Q.H.

(Prereq. Two years of calculus and one course in programming)

This is a computer-oriented introductory course with emphasis on appreciation of the difference between the theoretical existence of a solution and its numerical calculation. Topics covered: systems of linear equations, nonlinear equations, interpolation, and approximation of functions. Students are required to program and analyze problems on a computer.

MTH 1350 Numerical Analysis 4 Q.H.

Continuation of MTH 1349. Topics include numerical differentiation and integration, solution of ordinary differential equations, and other topics as time permits.

MTH 1351 Functions of a Complex Variable I

(Prereq. MTH 1243 or equiv.) 4 Q.H.

Topics include algebra and geometry of complex numbers; concepts of limit, continuity, and derivative in the complex domain; holomorphic functions, series, contour integration. Applications.

MTH 1352 Functions of a Complex Variable II

(Prereq. MTH 1351) 4 Q.H.

Continuation of MTH 1351. Further topics may include conformal mapping, analytic continuation, Riemann surfaces, the Laplace transform and inverse transform, elliptic functions, applications.

MTH 1367 Geometry

4 Q.H.

This course provides a careful look at classical Euclidean geometry, Hilbert's axioms for geometry, and models; geometries of Bolyai-Lobachevsky.

MTH 1370 Recent Ideas in Geometry 4 Q.H.

(Prereq. MTH 1312 and MTH 1302, or permission of instructor)

Topics chosen by the instructor may vary each year. Topological classification of surfaces, theory of critical points and singularities of mappings, topological study of vector fields, knot theory, graph theory, differential geometry of surfaces, algebraic curves, homotopy.

MTH 1371 Recent Ideas in Geometry 4 Q.H.

(Prereq. MTH 1370)

Continuation of MTH 1370.

MTH 1387 Probability I

4 Q.H.

(Prereq. MTH 1223 or 1244)

Topics include probability functions for finite and infinite spaces; conditional probability and independence; discrete and continuous probability distributions for one or more random variables, expectation; moments; binomial, Poisson, and normal distributions; central limit theorem.

MTH 1388 Probability II

4 Q.H.

(Prereq. MTH 1387)

Selected topics are studied, including introduction to stochastic processes, with emphasis on Poisson processes and Markov chains.

MTH 1390 Mathematical Statistics

4 Q.H.

(Prereq. MTH 1387)

Topics include estimation of parameters, confidence intervals, hypothesis testing, regression, sampling distributions. Introduction to analysis of variance and statistical decision theory.

MTH 1392 Multivariate Statistics

4 Q.H.

(Prereq. MTH 1390)

The course examines methods of classification, estimation, and prediction based on several statistical variables.

MTH 1407 Introduction to Analysis of Algorithms

4 Q.H.

(Prereq. MTH 1245)

The course offers theoretical study of algorithm design, evaluation of algorithms, and other algorithmic concepts and techniques useful for computer programming. Topics include graph and matrix algorithms, testing primeness, factoring; evaluating greatest common divisors, linear Diophantine equations; evaluating square roots, logarithms, exponentials, etc.; truncation and round-off errors; random number generation; information organization and retrieval; sorting.

MTH 1411 Automata Theory and Formal Languages 4 Q.H.

(Prereq. COM 1130 and COM 1201 or equiv.)

Topics include finite-state machines and regular expressions, context-free grammars. Parsing of context-free languages. Context-sensitive grammars, push-down stores, stack machines and linear-bounded automata. Turing machines, undecidability, description of computation using list structures, program machines, and programs.

MTH 1412 Artificial Intelligence 4 Q.H.

(Prereq. COM 1201 or equiv.)

The course provides analysis of current computer programs dealing with problems such as theorem proving, chess playing, general problem solvers, robotics, symbolic computation, preceptrons, self-reproducing automata, and parallel machines.

MTH 1801-MTH 1809 Directed Study 4 Q.H.

(Prereq. Permission of instructor)

Programs of directed study, held one or more quarters, are available for highly motivated students who

wish to explore mathematical situations and theories in depth. Directed study can be used as an opportunity to examine familiar material in fresh ways or to explore new material that is not offered in formal courses. It is hoped that directed study programs will provide students strong in mathematics and the related sciences a chance to develop the art and skill needed to work independently and creatively in mathematics. **Note: Students strong in mathematics are permitted to enroll in graduate courses in mathematics.**

Honors Program:

MTH 1714, MTH 1723, MTH 1724, MTH 1725, MTH 1733, MTH 1734, MTH 1735 (each 4 Q.H.) and MTH 1743, MTH 1744, and MTH 1745 (each 5 Q.H.)

Special sections for Honors students of courses: MTH 1114, MTH 1123, MTH 1124, MTH 1125, MTH 1133, MTH 1134, MTH 1135, MTH 1143, MTH 1144, and MTH 1145, respectively.

Music

Please note some courses in the College of Arts and Sciences are duplicated in different departments or colleges, or within a department. You may not receive credit for two such courses. If you have a question about whether one course does overlap with another, please consult the departments involved and the Dean's Office *before* taking the course.

Roman numerals at the end of course descriptions refer to *Core Curriculum* categories listed on pages 1-2.

MUS 1100 Introduction to Music 4 Q.H.

This course offers an introduction to selected works of our Western musical heritage, from earliest to contemporary styles. It is primarily a survey and listening course, with emphasis on styles, basic theory, forms, and the historical, social, and artistic periods which these works represent. (II)

MUS 1101 Music as a Listening Experience

4 Q.H.

This introduction-to-music course is listening-oriented and has been designed to provide tools for the aural appreciation of music. No previous musical knowledge is required or assumed, and studies deal directly with compositions selected from the masterpieces of music. Organized according to the tenets of PSI (Personalized System of Instruction), the course allows the student to proceed at his or her own pace under the constant guidance and supervision of the instructor. Grades are determined by the number of units completed. (II)

MUS 1102 Music in Concert

4 Q.H.

In this course students have the opportunity to develop musical understanding through the study of music that is performed today in concerts by major symphony orchestras in the United States and throughout the world. Study materials are selected from actual symphony concert programs.

MUS 1103 Music as a Means of Social Expression

4 Q.H.

The course deals with the artist's involvement with recurring social themes of the human self-image, the search for peace and understanding, society's treatment of minority groups, and sex roles. Paintings and literary works are examined, in addition to works by composers such as Beethoven, Schönberg, Britten, and jazz. (III)

MUS 1104 Survey of African-American Music

4 Q.H.

Black music has evolved in fascinating ways over the past several hundred years. Topics include the impact of African rhythm on American black music, the New Orleans coalescence, regional developments, ragtime, the emergence of big bands, the harmonic revolution of the 1940s, bebop, the 1960s avant-garde, and subsequent developments. Also examined are the contributions of black composers such as William Grant Still, Ulysses Kay, and George Walker. This is the same course as AFR 1153.

MUS 1105 Music of the U.S.A.

4 Q.H.

This course examines American music from the time of Puritan psalm singing to the present. A wide variety of music will be covered, including concert music, traditional folk music, jazz, and contemporary styles.

MUS 1106 Women in Music**4 Q.H.**

This course examines the multi-faceted role of women in music from the Renaissance through to the present. For centuries women have been active and influential patrons, composers, teachers, conductors, and performers in Europe and America. Their contributions to classical and popular music and to jazz will be examined with emphasis on such widely varying figures as Queen Elizabeth I, Elizabeth Jacquet de la Guerre, Fanny Mendelssohn Hensel, Clara Schumann, Mrs. H. H. A. Beach, Germaine Tailleferre, Billie Holiday, Carla Bley, Ruth Crawford Seeger, Pauline Oliveiros, Sarah Caldwell, Antonia Brico, and Nadia Boulanger.

MUS 1107 Principles of Music**4 Q.H.**

This course will examine the evolution of each major structural element of music through a historical perspective. Also, an attempt will be made to link larger categories of music such as classical, popular, and non-Western by examining their common elements. Required of all Music majors.

MUS 1110 Music in Popular Culture

This course deals with the nature of music composed for the mass market. Techniques of recording and merchandising music are discussed, and selected songs are analyzed for their musical content. The evolution of various styles will be traced including ragtime, jazz, blues, and rock.

MUS 1111 Rock Music**4 Q.H.**

This course examines the development of rock'n'roll and its relationship to blues, rhythm and blues, country, folk and other styles of music. Themes to be considered include the role of rock as youth music, the reflections of social realities in rock songs, the relationship of rock to the recording industry and the mass media, and the changing styles of rock; additional emphasis on listening skills.

MUS 1112 Jazz**4 Q.H.**

The course focuses on jazz from its origins in New Orleans to the avant-garde experiments of today. The rhythmic, harmonic, instrumental, and stylistic characteristics of jazz are analyzed. Attention is given to the works of creative jazz artists such as Armstrong, Beiderbecke, Parker, Ellington, and Coltrane.

MUS 1113 The New Jazz**4 Q.H.**

The course offers an in-depth study of various recorded works of important jazz performers/composers with respect to their works as creative artists: Armstrong, Beiderbecke, Ellington, Coltrane, Miles Davis, etc. The study is not chronological but deals rather with the dynamics of artistic growth and change. Special attention is given to the developments of the last decade.

MUS 1120 Topics in Music History**4 Q.H.**

(Prereq. MUS 1201)

This course provides a chronological view of Western music, while examining the role of music in society and exploring the contributions of influential composers. Representative works from each period are discussed, including music by composers such as

Machaut, Josquin, Bach, Handel, Mozart, Haydn, Beethoven, Berlioz, Wagner, Mahler, and Stravinsky.

MUS 1121 Medieval and Renaissance Music**4 Q.H.**

This course offers an introduction to European music from the sixth through the sixteenth centuries. A wide variety of music is covered, ranging from the serene elegance of sacred Gregorian chant and the plaintive love songs of the medieval troubadours to the lively dances and humanistic vocal music of the renaissance. Representative works by composers such as Machaut, Landini, Josquin, Palestrina, and Dowland will be examined.

MUS 1122 Music of the Baroque Era**4 Q.H.**

This course focuses on music of the seventeenth and early eighteenth centuries in Italy, Germany, France, and England. The emergence of important new genres (such as opera, sonata, and concerto) is discussed, and representative works of major composers (such as Bach, Handel, Corelli, Vivaldi, Rameau, and Purcell) are examined.

MUS 1123 Music of the Classical Era**4 Q.H.**

This course focuses on crucial developments in musical styles and forms of the late eighteenth century and on emerging genres, such as the symphony, the concerto, and the string quartet. Emphasis is placed on the vocal and instrumental works of Haydn and Mozart and on the early works of Beethoven.

MUS 1124 Music of the Romantic Era**4 Q.H.**

This course focuses on romantic realism and idealism as expressed in the music of the nineteenth century. Emphasis is placed on historical, nationalistic, and literary influences. Included are composers such as Beethoven, Schumann, Schubert, Berlioz, Liszt, Verdi, Wagner, Brahms, Tchaikovsky, and Mahler. (V)

MUS 1125 Twentieth-Century Music**4 Q.H.**

This course focuses on developments in music from 1900 to the present. A broad range of musical styles will be examined, including impressionism, expressionism, neo-classicism, and other major trends in music of the twentieth century. (V)

MUS 1126 New Directions in Music**4 Q.H.**

Music from 1950 to the present has changed more radically than during any other era in history. This course examines new elements in classical and popular music and focuses on the relationship between the two styles.

MUS 1130 The Symphony**4 Q.H.**

This course offers a study of the symphony as a major genre in the classical, romantic, and contemporary periods. Included are works by composers such as Haydn, Mozart, Beethoven, Schumann, Tchaikovsky, Brahms, Sibelius, and Prokofiev.

MUS 1131 Piano Music: The Great Composers and Performers**4 Q.H.**

This course will give students the opportunity to hear and analyze some of the greatest works for piano,

performed by some of the world's greatest performers. In addition to recordings by internationally acclaimed artists, live performances by guest artists from the Boston area will be presented in class.

MUS 1132 Introduction to Opera 4 Q.H.

This course offers an analysis of opera as a dramatic genre. Aria, recitative, ensemble, and other basic elements of opera are isolated and discussed. Number opera, music drama, and Singspiel are some of the types of opera considered. Included are composers such as Mozart, Wagner, Verdi, and Puccini.

MUS 1133 Great Choral Literature 4 Q.H.

This course provides an analysis of sacred and secular choral literature from medieval to contemporary times.

MUS 1134 Music and Poetry 4 Q.H.

This course will examine the art of setting words to music. It will confront the aesthetic problems encountered in a synthesis of two different art forms. That synthesis will then be examined in selected songs, choral works, tone poems, and operas of diverse periods and styles (classical, folk, and popular).

MUS 1135 Traditional Folk Music of the United States 4 Q.H.

This course focuses on the major folk music traditions of North America and their origins in Europe and Africa. Emphasis is also given to related ethnic dances, epics, and rituals.

MUS 1140 Mozart 4 Q.H.

Mozart's musical development from child prodigy to mature artist is traced from personal letters and biographies. Many of his major compositions, including symphonies, concertos, operas, and chamber works are analyzed.

MUS 1142 Stravinsky 4 Q.H.

This course focuses on the life and works of Igor Stravinsky, the man who has been perhaps the most influential of all twentieth-century composers. Important works (such as *The Rite of Spring*, *Symphony of Psalms*, *The Rake's Progress*, and *Agon*) will be selected from each of his major stylistic periods, and his contributions to twentieth-century musical style will be assessed.

MUS 1144 Debussy and the Music of Paris 4 Q.H.

Claude Debussy, impressionist in sound, composed music that marked a turning point toward modern trends. This course covers much of his music for piano, orchestra, and voice, including *Suite Pour le Piano*, *Suite Bergamasque*, *Images* (for piano and orchestra), *Nocturnes*, *La Mer*, and *Pélleas et Mélisande*. The music of Satie, Ravel, and Fauré, as it relates to that of Debussy, will also be discussed.

MUS 1145 Beethoven 4 Q.H.

This course analyzes the complex personality and art of Beethoven, his relation to the turbulent times in which he lived, and his role in classical and romantic music. (III)

MUS 1146 George Gershwin 4 Q.H.

A study of the life and works of George Gershwin (1898-1937), including popular song, musical comedy, opera, and orchestral compositions. A primary goal of the course is understanding the relationship of George Gershwin to his times, both musically and historically; it will take as a critical starting point Gershwin's famous statement: "My people are American; my time is today."

MUS 1161 Music Therapy 4 Q.H.

The course examines the application of music as a therapeutic vehicle to release suppressed emotions, to encourage self-expression in psychiatric patients, and to treat a wide variety of disorders. Music therapy, in a modern approach to health services, is currently being considered as a supplement to other treatments.

MUS 1162 Music Therapy II 4 Q.H.

(Prereq. MUS 1161)

This course examines the etiologies, characteristics, and applications of music therapy with the physically handicapped, hearing impaired, visually impaired, learning disabled, emotionally disturbed, speech/language impaired, and geriatric populations in one-to-one and group settings. In addition, improvisations and appropriate music materials for the nonmusician and adapted instrument designs tailored to each disability are studied, while the correlation of music and movement is explored. Comparison of various musical therapy approaches is included, and field trips to musical therapy sites in and around Boston will be taken.

MUS 1165 The Music Industry 4 Q.H.

This course will examine business-related areas of the music industry. Included will be topics such as the make-up and structure of the record industry and music publishing world, the function of performing rights organizations (ASCAP and BMI), and the role of concert and orchestral managers. Guests from the various fields will be invited to lecture in class, and trips to "behind the scenes" locations will be arranged.

MUS 1170 Music and Technology 4 Q.H.

A study of the applications of contemporary technology to music. Topics to be discussed include basic acoustics, analog and digital recording techniques, computer sound synthesis, and the aesthetics of electronic music. There are no prerequisites in physics or music theory for Music 1170; however, projects and paper assignments will take into consideration the particular backgrounds of individual students.

MUS 1180 Introduction to World Music 4 Q.H.

An introduction to music from around the world through the study of selected art and folk musics (excluding European art music). Listening skills and an understanding of the role of music in society will be emphasized.

MUS 1181 Music of Africa**4 Q.H.**

The music of Africa is as varied as that continent's many linguistic and tribal identities. This course will provide a broad survey of the musical traditions of Africa with respect to their historical, social, and cultural backgrounds. Musical organization, musical practice, and aspects of style will all be discussed in light of possible contributions to contemporary African-American music.

MUS 1182 Music of the Middle East**4 Q.H.**

This course is an introduction to the music of selected Near Eastern and Arab cultures (such as Persian in the East and Ethiopic and Berber in Africa). The cantillation styles and practices of various chants of the Hebrew, Christian, and Islamic traditions are also included.

MUS 1183 Music of East Asia**4 Q.H.**

This course will introduce the student to the musical heritage of East Asia by examining music history, the relationship of music cultures to each other, the organization of musical sounds, and music as an aspect of culture. There will be an emphasis on developing basic listening skills.

MUS 1184 Music of Latin America and the Caribbean**4 Q.H.**

This course will examine the highly diverse and unique musical practices of Latin America and the Caribbean. Emphasis will be on music's role as an adjunct to religious and social practices, as well as how it has been influenced by European, Native American, and African music.

MUS 1200 Learning to Read and Write Music**4 Q.H.**

This is a basic course for those who want to learn how to read music or how to write a tune. Students have the opportunity to learn to sight-read music and to compose in some of the basic forms (song, theme and variation, etc.). Credit given for either MUS 1200 or 1201. A student may not receive credit for both courses (overlapping material).

MUS 1201 Fundamentals—Music Theory I**4 Q.H.**

This course, the first in the theory sequence, offers the student the opportunity to learn simple melodic and rhythmic dictation skills; to recognize and build scales, intervals, and triads; and to sing at sight simple tonal melodies. A noncredit, ear-training lab will be required. (II)

MUS 1202 Theory II**4 Q.H.**

(Prereq. MUS 1201)

This course focuses on harmonic practices in tonal music. The role and function of harmony will be examined through analysis of musical examples and composition of four-voice chorales. A noncredit, ear-training lab will be required.

MUS 1203 Theory III**4 Q.H.**

(Prereq. MUS 1202)

This course is a continuation of Theory II and focuses

on aspects of chromatic harmony. Subjects to be discussed include the construction and function of borrowed chords, altered chords, and non-diatonic harmony. A noncredit, ear-training lab will be required.

MUS 1204 Theory IV**4 Q.H.**

(Prereq. MUS 120)

This course introduces the student to methods of musical analysis. Topics include the phrase, periodicity, tension-repose, and other structural factors of musical compositions. A noncredit, ear-training lab will be required.

MUS 1230 Chorus**1 Q.H.**

(Prereq. Permission of the instructor)

Students participate as performers in one or more ensembles under the direction of a faculty conductor. May be repeated for credit.

MUS 1231 Band**1 Q.H.**

(Prereq. Permission of the instructor)

Students participate as performers in one or more ensembles under the direction of a faculty conductor. May be repeated for credit.

MUS 1232 Orchestra**1 Q.H.**

(Prereq. Permission of the instructor)

Students participate as performers in one or more ensembles under the direction of a faculty conductor. May be repeated for credit.

MUS 1233 Early Music Players**1 Q.H.**

(Prereq. Permission of the instructor)

Students participate as performers in one or more ensembles under the direction of a faculty coach. May be repeated for credit.

MUS 1240 Historical Instruments Workshop**4 Q.H.**

This course is for those who wish to learn to play a medieval, Renaissance, or baroque instrument. In addition to teaching basic skills on instruments such as recorder, flute, crumhorn, viola da gamba, vielle, cornetto, and harpsichord, the course will provide opportunities for developing proficiency in music reading and ensemble playing.

MUS 1241 Piano Class I**4 Q.H.**

This course is an introductory level study of piano designed for college students with or without previous experience. The course combines skills in reading music with improvisation and functional piano. Some basic theory is introduced to help clarify the structure of class repertoire. The system allows each student to progress at his or her own pace. Grades are determined by the amount of repertoire mastered during the quarter.

MUS 1242 Piano Class II**4 Q.H.**

(Prereq. MUS 1241)

This course is a continuation of the skills developed in Piano I, with emphasis on increasing students' flexibility at the keyboard through the study of scales, transposition, and modulation.

MUS 1244 Voice Class I 4 Q.H.

(Prereq. Permission of instructor)

Students will have the opportunity to learn the basic vocal production required for fine singing. Repertoire, both classical and contemporary, will be chosen for each student to learn and perform in lessons and before the entire class. Lectures will be given on the following subjects: diction, the physiology of singing, resonance, registers, and interpretation. Students will also study the basics of music reading and sight-singing. Some interpretation will be discussed, and recordings of the greatest vocal artists will be played for class analysis.

MUS 1247 Guitar Class I 4 Q.H.

This course is an introduction to the fundamentals of classical guitar playing for those with or without prior knowledge of the guitar. Music reading and theory are introduced. Students perform alone and in ensemble with other members of the class. The syllabus is augmented by live performances from outside professional and student classical guitarists. Final grades are based on several written examinations and student performance.

MUS 1301 Form and Analysis I 4 Q.H.

(Prereq. MUS 1204)

Through the examination of representative examples, the student will become familiar with the structural principles governing the melodic, harmonic, rhythmic, and formal components of music. This course will focus on music from the sixteenth to the mid-nineteenth centuries.

MUS 1302 Form and Analysis II 4 Q.H.

(Prereq. MUS 1301)

This course is a continuation of Music 1301. The student will examine works from the late nineteenth century to the present. Selected readings by prominent twentieth-century theorists will also be included.

MUS 1461 Applied Music Lessons 3 Q.H.

(Prereq. Permission of instructor and department chairman)

Advanced individual instruction in voice or on modern and early instruments. May be repeated for credit. This course is available only to upperclass students concentrating in Music Literature and Performance.

MUS 1800, MUS 1801, MUS 1802, MUS 1803, MUS 1804, MUS 1805 Directed Study

(each) 4 Q.H.

The focus of this course is independent work in a selected area of music under the direction of one member of the department. Enrollment is limited to qualified students by special arrangement with the supervising faculty member and with the approval of the department chairman.

MUS 1810, MUS 1811, MUS 1812 Junior-Senior Honors Program (each) 4 Q.H.

For details contact the Honors Office, 183 Holmes.

INT 1100 Introduction to Art, Drama, and Music 4 Q.H.

This interdisciplinary course offers an integrated approach to three related disciplines: art, drama, and music. Basic vocabulary and analytical techniques are established for each discipline, emphasizing such common elements as color, line, rhythm, texture, and form. Representative works from various periods are examined in the context of the cultures that produced them, and lectures focus on parallels and contrasts among the three disciplines' manifestations of specific trends, principles, and ideals. Lectures, readings, and listening assignments are supplemented by visits to art galleries and attendance at concerts and theatrical performances. (II)

INT 1110 American Musical Theatre 4 Q.H.

This interdisciplinary course, offered by the departments of Drama and Music, traces the development of the American musical from works such as *The Black Crook* to the present. The role of musical theatre as both entertainment and serious art form is considered through an examination of script, score, dance, and design. Works by composers and lyricists such as Bernstein, Rodgers and Hammerstein, the Gershwins, Weill, Lerner and Loewe, and Cole Porter are studied.

A limited number of qualified students will be able to take selected courses at the New England Conservatory of Music. Regular academic credit will be granted. For information, contact the chairman of the NU Dept. of Music.

Philosophy and Religion

Please note some courses in the College of Arts and Sciences are duplicated in different departments or colleges, or within a department. You may not receive credit for two such courses. If you have a question about whether one course does overlap with another, please consult the departments involved and the Dean's Office before taking the course.

Roman numerals at the end of course descriptions refer to *Core Curriculum* categories listed on pages 1-2.

PHL 1100 Introduction to Philosophy 4 Q.H.

The course seeks to introduce students to philosophy by acquainting them with the theories and arguments of classical and contemporary philosophers

and by teaching the skills of constructing and analyzing arguments. Students both learn about and engage in philosophical inquiry. While not all sections treat the same issues, typical areas covered

include questions about the basis of morality, free will versus determinism, the existence of God, the problem of suffering, and the nature of knowledge. (II)

PHL 1110 Introduction to Religion 4 Q.H.

This course seeks to identify and appraise different ways of being religious: primitive, mystical, dogmatic, and ritual. Emphasis is placed upon appreciating the unique standpoint that each requires, how each sees the world in a radically different way, and how that leads to distinctive ways of life. (II)

PHL 1115 Understanding Religious Man 4 Q.H.

This course examines several important explanations of the nature, origin, and present significance of religious experience, beliefs, and practices in the light of modern knowledge and attitudes.

PHL 1130 Ethics: East and West 4 Q.H.

Is there a best way to live? Is there a way a human being should live? In both Eastern and Western philosophy there are claims that a way of life exists that leads to happiness, power, and wisdom. This course explores this claim by studying the thought of such philosophers as Socrates, Buddha, Plato, Aristotle, Lao Tzu, Epictetus, Marcus Aurelius, Aquinas, and Spinoza, as well as by studying some of the classical Hindu and Buddhist texts. (V)

PHL 1135 Philosophical Problems of Law and Justice 4 Q.H.

This course focuses on two general questions: What is the proper scope of the law? And how should the law be enforced? Under the first question, a number of issues are dealt with: whether the law has a legitimate right to restrict such activities as the use of drugs, deviant sexual practices, or gambling. Topics included in the second question are the justification of punishment, rehabilitation as an alternative to punishment, and the death penalty.

PHL 1140 Social and Political Philosophy 4 Q.H.
(Prereq. 4 Q.H. philosophy)

A consideration of basic questions about the nature of the state and the relationship of individuals to the state. What basis is there for individuals to obey the laws of the state? What conditions must a government meet to be legitimate? What justification can be given for democratic forms of government? What sorts of controls should the state exert over citizens? What benefits do citizens have a right to expect from the state? Readings will include both classical and contemporary sources. (V)

PHL 1145 Technology and Human Values 4 Q.H.

The course examines the changing values of the modern, technologically advanced world. Our study attempts to increase our understanding of the supposed breach between the literary and scientific cultures, the diverse approaches toward their reconciliation, and the human dimensions of science and technology. Other relevant topics are the neutrality of technology with respect to good or evil uses, technology as an instrument for human liberation, and the issue of proper and effective modes of controlling

technology in today's world. Pirsig's widely read paperback, *Zen and the Art of Motorcycle Maintenance*, is studied, as is Lynn White's *Dynamo and Virgin Reconsidered*. Other important writers to be considered include Kurt Baler, Jacob Bronowski, Barry Commoner, Erich Fromm, Karl Marx, and C. P. Snow. (VI)

PHL 1150 Technology and the Individual 4 Q.H.

This introductory course attempts to awaken some philosophical reflectiveness regarding the potential benefits and threats to individuals that derive from technological change. The course explores and discusses such issues as the relation of technology to human freedom and privacy, the effects of "future shock" upon the individual, the possibility of the tyranny of a technological elite, and the prospects for the transformation of humankind. Some writers see technology as the salvation of humanity; others see technology leading to dehumanization, a decrease of freedom, and a developing sense of alienation; still others see the extinction of "human nature" as we once knew it. Where is the truth in all of this? What are the social, psychological, and philosophical meanings and consequences of technological change in our day and in the future? Some of the major readings for the course are from Alvin Toffler's *Future Shock*, Herbert Marcuse's *One Dimensional Man*, Jacques Ellul's important criticism *The Technological Society*, and Lewis Mumford's *The Transformation of Man*.

PHL 1155 The Ethics of Human and Animal Experimentation 4 Q.H.

This course explores the conflicts that arise between the value of free scientific inquiry on the one hand, and the rights, vulnerabilities, and suffering of human and animal subjects on the other. Topics include traditional issues involving informed consent, voluntariness, coercion, experimental design, risk-benefit analyses, institutional review boards, and professional guidelines, as well as such less traditional issues as the competing conceptions of progress, whether we have obligations to nonhuman animals, and what, if anything, justifies us in treating nonhuman animals in ways in which we know we should not treat human animals.

PHL 1160 Ethical Issues of Taxation 4 Q.H.

Although we tend to believe that persons have a right to their own labor, a right to their own property, and a right to exchange their labor or property for the labor or property of other consenting adults, it seems that income taxes, property taxes, and sales taxes violate these rights. This course explores two basic questions: Is any taxation morally justified? Are there moral grounds for choosing among taxation policies? Specific topics include competing conceptions of private property; the "progressive versus regressive taxation" controversy; the "flat tax" controversy; the alleged problems with interpersonal utility comparisons; and questions involving the distribution of tax monies, e.g., whether those who have more than they need have any moral obligation to provide for the needs of the poor. (VI)

PHL 1165 Moral Problems in Medicine 4 Q.H.

This course examines two fundamental ethical systems, one of which is grounded on the dignity of the person, the other on the intrinsic value of happiness. The course then explores the difficult issues of euthanasia, suicide, paternalism, medical experimentation, the patient's right to consent to any therapeutic intervention, and the concept of death with dignity. After studying these and related moral issues, the larger economic and policy issues of justice, some of which are current in political debates, are examined (for example: Is there a right to health care?). It is hoped that this course will encourage the student to become more sensitive to moral problems as they arise in medical settings, better able to deal with these troublesome issues, and perhaps to be more courageous in facing them if that becomes necessary. The course also offers an investigation into the questions of abortion, euthanasia, infanticide, genetic counseling, psychosurgery, and human experimentation from the standpoint of both philosophical ethics (such as the theory of the end justifying the means) and religious ethics (such as the natural law theory of the Roman Catholic Church).

PHL 1200 Introduction to Logic-1* 4 Q.H.

A practical introduction to the logic of propositions and the syllogism. Principles of critical reasoning and fallacies. Practice in applying logical techniques to the creation and criticism of argument. (II)

PHL 1203 Introduction to Logic-2* 4 Q.H.

Further study of the techniques of logic in the analysis and creation of argument. The logic of predicates, quantifiers, and relations. Practice in applying these techniques to natural arguments. Consideration of the forms of definition and the evaluation of empirical generalizations. (II)

PHL 1215 Symbolic Logic* 4 Q.H.

The course offers a presentation of the syntax and semantics of propositional logic and first order quantification theory. Relations between these systems and natural language are considered. The course covers analysis of the notion of derivation within a system and the notion of logical consequence, and practice in analyzing logical structure in natural language sentences. (II)

PHL 1225 Ancient Philosophy 4 Q.H.

An exploration of classical Greek philosophy, the course starts with a study/discussion of the roots of Western thought in the sixth century B.C. and argues the reasons for our debt to these original thinkers who were concerned with explaining the principles of external nature and the problems of human knowledge and conduct. Central to understanding these problems is the study of Socrates and his adversaries, the Sophists, and the two major figures he influenced: Plato and Aristotle. The course also covers

Roman philosophy, the Stoics, and the Sceptics, who are a prelude to the early Christian philosophers of the first century A.D. Throughout the course, attention is placed upon the interplay between the philosopher and the moral, social, and religious context in which his thought arises. Student participation in class discussion is very important to the course. (III)

PHL 1230 Modern Philosophy 4 Q.H.

(Prereq. 8 Q.H. philosophy)

The 100 years between 1650 and 1750, sometimes called "the century of genius," were a period in which philosophers reacted to the new scientific discoveries of Copernicus, Kepler, and Galileo. Out of this reaction came new ways of thinking about the nature of knowledge and the nature of the world itself. The course focuses on the development of the rationalist and empirical philosophies during this period, with emphasis on Descartes, Leibniz, Spinoza, Locke, Berkeley, and Hume. (III)

PHL 1243 Existentialism 4 Q.H.

(Prereq. 4 Q.H. philosophy)

Existentialist philosophy is examined in its greatest representatives, such as Kierkegaard, Nietzsche, Dostoevski, Heidegger, Jaspers, and Camus, with major attention given to Jean-Paul Sartre and Maurice Merleau-Ponty. The focus of this course will be on central themes, including self-alienation, unauthenticity, authenticity, and existential experiences. Existential philosophy is examined in its historical, social, and cultural relations, and in its influence on psychology, psychoanalysis, sociology, political science, and literature, both in Europe and in the United States.

PHL 1245 Analytic Philosophy 4 Q.H.

(Prereq. 8 Q.H. philosophy)

The development of the analytic movement from its beginnings in the early works of Moore and Russell. Some treatment of Russell's logical atomism, the logical positivists, the thought of Ludwig Wittgenstein, and their widespread influence.

PHL 1250 Chinese Philosophy 4 Q.H.

This course offers a study of Chinese philosophy in the ancient period (until 221 B.C.). Emphasis is placed on Confucianism, Taoism, and the *I Ching*. Less emphasis will be placed on the Logicians, the Mohists, and the Legalists.

PHL 1255 Indian Philosophy 4 Q.H.

In this course we examine the two classical Indian philosophical systems of Hinduism and Buddhism. In examining Theravada Buddhism, we explore the view that it is possible for us to live without anxiety or suffering if we overcome our ignorance of reality and master our desires. Next, we turn to Mahayana Buddhism, focusing on its ethics of compassion and its related metaphysics of "voidness." In this part of the course, we examine questions which, in the West, are thought of as questions about personal identity and the nature of the self. In exploring Hinduism, we study Vedic mysticism as it comes to us through the Upanishads, as well as the influential ethics of the

*Students should take either PHL 1200 and PHL 1203 or PHL 1200 and PHL 1215. Credit will not be given for all three courses.

Bhagavad Gita. Among the philosophical issues that arise in our examination of Hinduism is the question of whether the method of yoga and meditation is a reasonable method for learning about the fundamental nature of reality.

While studying the classical texts of these systems, we will critically explore the techniques employed within these traditions: the method of yoga, the function of the guru, various methods of meditation, the point of non-violence, the function of philosophical analysis, and the role of the austerities. In so doing, we study Hinduism as it is currently practiced in India; Theravada Buddhism as it is currently practiced in Sri Lanka and Thailand; the Tibetan tradition of Mahayana Buddhism; and the nonviolence of Ghandi.

To study Indian philosophy is to study a tradition of philosophy in which ethics is not fragmented from epistemology, knowledge is more than justified true belief, and one's metaphysics is to be realized. In our study, besides the classical texts, we will employ films and guest speakers.

PHL 1265 American Religions

4 Q.H.

This course will approach the American religious tradition from three perspectives. First, we shall examine the transplanted and transformed European traditions in the context of American diversity and pluralism. The Protestant, Roman Catholic, and Jewish traditions will be the most significant examples. Second, we shall look into the rise and establishment of largely indigenous religious groups who have forged their own foundations in the midst of the older traditions. Among others, the Mormons, the Hutterites, the Mennonites, the perfectionist groups (such as the older Oneida Community and the Shakers, and the more recent "cults"), and the black and Native American groups are especially significant because of their attempts to survive apart from the general culture. Third, we shall explore the theory of an American civil religion—the notion that there is a general religious meaning for American culture that makes the coexistence of the many religious groups possible and gives to that culture and its history a religious significance. The purpose of the course will be to achieve an understanding of what is unique and viable in the American religious tradition. (III)

PHL 1270 Western Religions

4 Q.H.

Western religion is grounded in the experience of God's presence, which transcends and transfigures the life of the individual and the community. This encounter is the essence of Judaism, Christianity, and Islam. Drawing on autobiography and biography, this course delves into the personal religious quests of such major religious thinkers as St. Augustine, St. Theresa, Martin Luther, Elie Wiesel, Richard Rubenstein, Dietrich Bonhoeffer, and Mohammed.

PHL 1275 Eastern Religions

4 Q.H.

Eastern religions appear to be fundamentally different from the orthodox religions of the West. Not only

do Hinduism, Buddhism, and Taoism promise a solution to the problem of suffering (compare the common Christian and Jewish attitudes), but most of these religions do not have a central God personality, and some explicitly reject such a concept as meaningless, or at least as irrelevant to leading a religious life. Central to these views is a way of being in the world which emphasizes meditation, skillful and compassionate action, and a direct awareness of the fundamental nature of reality. The course first tries to make sense of the difficult notion that the way we perceive reality may be illusory. It then examines Theravada Buddhism, a religion that rests on the insights that everything is impermanent and that it is possible to live fully in the present without any suffering. From Theravada Buddhism, the course turns to Mahayana Buddhism, and then to Taoism, a subtle view that emphasizes the "flow" of life and that "the way to do is to be." Next, the Hinduism of the Upanishads is examined. As part of the exploration of this form of Hinduism, students are given the opportunity to examine intellectually and also to practice a few methods of meditation. In addition, the course investigates the devotional aspect of Hinduism as expressed in the Bhagavad Gita. There will also be an exploration of Zen. (IV)

PHL 1280 Islam

4 Q.H.

The course explores the history of Islam, its conflicts with the West in past and present, Islamic beliefs, the future of Islam as a world religion, and relations of Islam with Christianity and Judaism. Since Islamic faith touches upon social, political, and legal issues, the course is concerned with them as well as with the more familiar religious and theological questions. (IV)

PHL 1290 Cults and Sects

4 Q.H.

This course offers an examination of the varieties of religious experience from the perspectives of sociology and psychology of religion. This course focuses on such cultic and sectarian groups as Christian Science, the American Shakers, the Unification Church, the Hare Krishna movement, and the Black Muslims. The primary purpose of this course is to provide the student the opportunity to acquire critical investigative tools with which to analyze different religious expressions. (III)

PHL 1293 Mysticism: East and West

4 Q.H.

(Prereq. PHL 1115 or permission of instructor)

The course offers an inquiry into mystical experience through a comparative study of the writings of Christian, Buddhist, and Hindu mystics and of secondary interpretive sources. Areas taken up are the potential oneness of man and God, the conflict of mystics with traditional forms of religion, and the possibility of a common, cross-cultural basis for mysticism.

PHL 1295 Medicine, Religion, and the Healers' Art

4 Q.H.

This course explores aspects of the historical, religious, and cultural context for contemporary alternatives in health care, beginning with an examination of

several examples of traditional healing practices and their accompanying religious and philosophical views about human life. Course material explores this "holistic" tradition in two frames of reference: the ascendancy of scientific rationalism over religion, and the takeover, by male-dominated professions, of healing functions that society has traditionally assigned to women (e.g., the rise of obstetrics and the suppression of midwifery). Special attention is given to major women healers of the nineteenth century. Course includes a look at some contemporary efforts at reintegration of scientific and traditional values in the modern health care system. Students will also meet and interact with patients and healers active in the modern holistic health movement.

PHL 1300 Religion in a Social Context 4 Q.H.

This course offers an exploration of the social forms of religion. The structures and roles of the church, synagogue, and sect are described and critically evaluated. In addition, emphasis is given to their functions, with reference to general social structure, process, and reform.

PHL 1305 Religion in the Age of Science 4 Q.H.

This course examines the problems posed by the interaction between religion and the natural and social sciences. Representative selections from Hume, Darwin, Marx, Freud, Erickson, and Troeltsch are used to interact with selections from Bultmann, Teilhard de Chardin, Niebuhr, Bonhoeffer, and Tillich.

PHL 1310 The Occult as Religion 4 Q.H.

The course focuses on the history, aims, and methods of such esoteric or mystic doctrines as astrology, numerology, magic, demonism, and divination, and investigates the structural similarities of these religious forms to those of the dominant religious traditions of the world.

PHL 1315 Understanding the Bible 4 Q.H.

This course introduces students to the Old and New Testaments, so that they may enter into a dialogue with the Bible, understanding not only what it says, but why it is said that way. To do this, discussion focuses on the Bible's social, political, and cultural backgrounds. (III)

PHL 1320 The Meaning of Death 4 Q.H.

This course offers an inquiry into different philosophical and religious perspectives on death and life after death, including an examination of some powerful contemporary accounts of personal confrontation with death, along with investigations into attitudes toward death in other traditions (e.g., Hinduism and Buddhism). In addition, the course explores responses to the Holocaust in Europe, and theories about life after death (such as those discussed in Raymond Moody's *Life After Life* and Ian Stevenson's *Reincarnation*). (V)

PHL 1325 Philosophy of Death, Grief, and Dying 4 Q.H.

This course explores fears about death and dying and the grieving process, and examines the processes

people sometimes experience while dying. In addition, the course examines current practices of caring for the dying and of coping with bereavement, questioning whether these practices are, in fact, healthy, helpful, and/or ethical. Other relevant ethical issues to be examined include euthanasia, truth-telling with the dying, suicide, and paternalism. The course will close with the question of the meaning of life, given the fact that we must die.

PHL 1335 Moral Philosophy 4 Q.H.

(Prereq. 4 Q.H. philosophy or religion or permission of instructor)

What sorts of things are good and bad? What actions are right and wrong? These two basic questions are explored. The course covers major classical conceptions of ancient Greece and Rome, their replacement by the Western religious ethic, its modification and rejection in the early modern period, and the emergence of modern versions of traditional conceptions of the good life, with reflections on the nature of ethical inquiry itself as a legitimate study.

PHL 1340 Aesthetics 4 Q.H.

(Prereq. 4 Q.H. philosophy)

This course offers a historical approach to aesthetics. Aesthetics is the philosophical analysis of concepts and the solution of problems that arise when one contemplates beautiful (or ugly) objects; it is also concerned with standards of value in judging art. Aesthetics asks the following questions: What features make objects beautiful (or ugly)? Are there aesthetic standards? What is the relation of works of art to nature? What is the nature of an aesthetic experience?

PHL 1345 Philosophy of Religion 4 Q.H.

(Prereq. 4 Q.H. philosophy)

The basic question in this course is "Does God exist?" The course examines several major arguments affirming and criticizing the notion of God's existence. A central problem in recent philosophy of religion is whether or not it makes any sense to speak of the truth (or falsity) of religious belief, as well as the implication an answer to that issue has for religious life; this topic will be examined in the latter half of the course.

PHL 1350 Philosophy of Human Nature 4 Q.H.

The course offers a philosophical inquiry into the theories of man, man's dimensions, and human nature. The question of the existence of human nature is thoroughly examined. Special interest will be given to contemporary theories of man and self-alienation, and their influence in social sciences. Selected readings from Descartes, Hobbes, Hegel, Marx, Kierkegaard, Maritain, Freud, Skinner, Fromm, and Frankl.

PHL 1355 Existentialism and Literature 4 Q.H.

After World Wars I and II, existentialist philosophy inspired the literature of "extreme situations." This course examines human extreme experiences in existentialist philosophy and novels. Some of the major themes are loneliness; self-alienation; social pressures; conformity; absurdity; anxiety; social, political,

and moral crises; nothingness; and death. Selected readings will include the most influential European and American authors.

PHL 1360 Philosophy and Literature 4 Q.H.

The purpose of this course is to provide the student the opportunity to learn to recognize, appreciate, and criticize philosophical themes in literature. The readings typically include acknowledged classics by philosophical authors such as Voltaire, Dostoevski, and Sartre, as well as such popular contemporary authors as Vonnegut, Barth, and Pynchon. There are also some readings from more straightforward philosophical sources. Philosophical topics include the meaning of life, the human condition, depersonalization, alienation, human freedom, questions of value, responsibility, rationality, and personal identity. Religious, nihilistic, existential, and other points of view are explored.

PHL 1370 The Meaning of Life 4 Q.H.

The course offers an examination of selected philosophical problems of human existence in the contemporary world, with major emphasis on the search for identity and self-fulfillment. Selected problems are discussed, such as freedom, death, sexuality, alienation, becoming a person, and peak experiences. The course includes readings from Kierkegaard, Heidegger, Sartre, Camus, Maslow, Allport, Frankl, Rogers, and Rollo May.

PHL 1375 Freud, Skinner, and Their Critics 4 Q.H.

(Prereq. 4 Q.H. philosophy or permission of instructor)
The course provides an examination of fundamental themes and concepts of Freud's psychoanalysis and Skinner's psychology from a philosophical perspective and criticisms of them from the point of view of reformed Freudians and existentialists. Selections include Freud, Jung, Adler, Karen Horney, Skinner, Koestler, Pearls, Sartre, Merleau-Ponty, and Kovaly.

PHL 1400 Theory of Knowledge 4 Q.H.

(Prereq. 4 Q.H. philosophy or permission of instructor)
This is an introduction to epistemology, or theory of knowledge, which asks the following questions: What is knowledge? Is knowledge (or even certainty) attainable? What are the limitations of human knowledge? How is knowledge—if we have it—acquired? What roles do reason and experience play in the attempt to attain knowledge? This course uses both classical (René Descartes and David Hume) and contemporary sources (Bertrand Russell and others). Various theories of knowledge, such as empiricism, rationalism, and scepticism, are examined and criticized. The student is encouraged to form at least tentative opinions on these issues.

PHL 1405 Metaphysics 4 Q.H.

(Prereq. 8 Q.H. philosophy)
The course offers a consideration of central problems and theories concerning the nature of reality, with special attention to such areas as the relation between mind and matter, free will and determinism, and criteria of existence.

PHL 1410 Philosophy of Science 4 Q.H.

(Prereq. 4 Q.H. philosophy)
Science is the dominant intellectual force of our culture. This course focuses on the nature of scientific method, scientific theories, and scientific explanations. A central question is: Why is science thought to provide the most reliable account of the nature of reality? Various theories about the nature and reliability of science are considered.

PHL 1415 Advanced Logic 4 Q.H.

(Prereq. PHL 1215)
The course offers a study of the major results in the meta-theory of first-order logic. Consistency, completeness, and decidability. Discussion of the general notion of an effectively computable process, Church's thesis, and the existence of unsolvable problems.

PHL 1430 Philosophy of Psychology 4 Q.H.

(Prereq. 4 Q.H. philosophy or 4 Q.H. psychology or permission of instructor)

The course offers an examination of the philosophical and scientific foundations of behavioristic psychology, with emphasis on the acquisition and use of language. Discussion of alternative conceptions, e.g., Chomsky's and those arising from computer studies.

PHL 1435 Philosophy of Mind 4 Q.H.

(Prereq. 4 Q.H. philosophy)
What is the relation between mind and body? Is the mental merely a function of bodily process and behavior or does it somehow exist "over and above" the material? How are self-knowledge and knowledge of other minds achieved? What is the relation between words and thoughts? This course in part, seeks to show what puzzles and problems result from an honest attempt to answer these questions in a reasonable way. Classical sources, such as Descartes and Locke, and contemporary sources, such as Wittgenstein and Putnam, are examined. But the course also seeks to arrive at some answers—however tentative or provisional—to these questions. The student is constantly challenged to think and write well about these difficult subjects.

PHL 1440 Philosophy of Language 4 Q.H.

(Prereq. Permission of instructor)
The course examines prospects for a theory of language, its syntax and semantics. Contrasts between theory of reference and theory of meaning. Are there universals of language? Relations between linguistics and psychology. Readings from Frege, Quine, Russell, Chomsky, and Fodor.

PHL 1550, PHL 1551, PHL 1552 Honors I, II, and III (each) 4 Q.H.

Students interested in taking Junior-Senior Honors courses should confer with department chairperson. Arrangements are made between the student and a member of the faculty. Staffing by arrangement.

PHL 1565 Seminar in Wittgenstein 4 Q.H.

(Prereq. 8 Q.H. philosophy or permission of instructor)
Ludwig Wittgenstein is one of the most influential, if not the most influential, philosophers of the twentieth

century. A mysterious yet charismatic figure, he possessed both analytic genius and the creativity of a visionary. With unparalleled intensity, he addressed himself to philosophical problems. What is the relationship between language and the world? Are there thoughts "too deep" for words? What, if anything, can be said about the mystical, the beautiful, and the religious? What is consciousness and what is its role in action? What are the big, simple, mistaken ideas that cripple the philosophical enterprise? How should philosophers proceed? What is meaningful? Wittgenstein's thought is so unique that it cannot be said that any other course, or courses, in Philosophy will prepare the student for it. On the other hand, intelligent students with little formal preparation can profit from a study of Wittgenstein, given the proper dedication to truth.

PHL 1800 Directed Studies **4 Q.H.**
(Prereq. By arrangement between student and faculty)
Those interested in the Directed Studies program should meet with department chairperson. Staffing: by arrangement.

PHL 3265 Issues in Medical Ethics **4 Q.H.**
(Prereq. permission of instructor)
This course focuses on issues in medical ethics, especially as they are likely to arise in a clinical setting. Course begins with exploration of the two basic systems of ethical theory and then concentrates on their application in cases exemplifying the issues of euthanasia, paternalism, experimentation, informed consent, quality of life, professional responsibility, right to health care, truth telling, genetic control, abortion, and the allocation of scarce medical resources.

INT 1400 Professional Practices: Individual and Social Dimensions **4 Q.H.**
The course explores the dimensions and dilemmas of freedom and responsibility confronting professional people practicing within the limits set by socioeconomic conditions, clients, and other professionals. Case histories are examined to illustrate the dilemmas professionals face, the choices that are typically made, and the consequences these have on the freedom of the practitioner and on personal and professional integrity.

Physics

Please note some courses in the College of Arts and Sciences are duplicated in different departments or colleges, or within a department. You may not receive credit for two such courses. If you have a question about whether one course does overlap with another, please consult the departments involved and the Dean's Office *before* taking the course.

Roman numerals at the end of course descriptions refer to *Core Curriculum* categories listed on pages 1-2.

Courses are listed according to level and degree of specialization and are not in numerical order. General interest courses have no prerequisites and may be used to satisfy College of Arts and Sciences distribution requirements in science. Introductory physics courses are basic first-year physics lecture courses; the corresponding laboratories are listed under introductory physics laboratories. Advanced physics and astronomy courses require one year of introductory physics and may be used to satisfy degree requirements for physics majors.

General Interest Courses

PHY 1101 Physics in Music **4 Q.H.**
This course discusses the physical principles involved in producing, recording, and reproducing music. Topics include explanations of the operation of various instruments in terms of the basic properties of resonances and waves; physical and psychological response of the ear; the physical basis of the modern (well-tempered) system of tuning; the operation of microphones, amplifiers, loudspeakers, tape recorders, radios, and other devices.

PHY 1111 Introduction to Astronomy I **4 Q.H.**
The first quarter of a two-quarter sequence, this course offers the nonscience student an introduction to modern astronomical ideas. Topics include introduction to the cosmos; tools of the astronomer (atoms, the nature of light and radiation, telescopes, space astronomy); the earth in space; our solar system

(origin and future of the solar system, the planets and other bodies, the latest from spacecraft flights, the sun as our bridge to the stars); the question of life in the universe. (II)

PHY 1112 Introduction to Astronomy II **4 Q.H.**
(Prereq. PHY 1111)
Topics include properties of stars: life and death of stars (Hertzsprung-Russell diagram, birth of stars, main sequence, red giants, white dwarfs, supernovae, neutron stars, black holes); our Milky Way galaxy; galaxies; quasars, cosmology (the expanding universe, the big bang, the future of the universe).

PHY 1121 Introduction to Science I **4 Q.H.**
PHY 1121 and PHY 1122 form a two-quarter sequence for nonscience majors that provides an interdisciplinary treatment of the basic ideas of the natural sciences. Concepts such as energy, gravity, and the

atom are discussed, followed by a consideration of the ways in which atoms combine to form the substances that comprise matter. (II)

PHY 1122 Introduction to Science II 4 Q.H.
(Prereq. PHY 1121)

This course applies principles previously learned in PHY 1121 to selected topics in biology, chemistry, physics, and geology. The subjects actually covered depend on the interests of the instructor, and, to some extent, on those of the students.

Introductory Physics Courses

PHY 1191 Physics I 4 Q.H.
(Prereq. MTH 1191, may be taken concurrently; B.E.T. majors only)

Topics include units and scientific notation, force, Newton's first law, static equilibrium, Newton's second law, momentum, work, kinetic energy, potential energy.

PHY 1192 Physics II 4 Q.H.
(Prereq. PHY 1191; MTH 1192 may be taken concurrently; B.E.T. majors only)

Topics include power, rotational motion, Pascal's law, hydrostatic pressure, molecular mass, ideal gas law, first and second laws of thermodynamics, simple harmonic motion, wave motion, sound, light.

PHY 1193 Physics III 4 Q.H.
(Prereq. PHY 1192; B.E.T. majors only)

Topics include electrostatics, circuit elements, direct current circuits, magnetism, electromagnetic induction, electromagnetic waves, atomic and nuclear physics.

PHY 1201 Physics for the Life Sciences I 4 Q.H.
Topics include vector addition of force, principles of statics; Newton's second law, kinetic and potential energy; pressure static properties of fluids, fluid flow. To take the laboratory for this course, register for PHY 1501 concurrently. (II)

PHY 1202 Physics for the Life Sciences II 4 Q.H.
(Prereq. PHY 1201)

Topics include wave motion, sound, light, optics, static electricity, d.c. circuits, magnetism. To take the laboratory for this course, register for PHY 1502 concurrently. (II)

PHY 1203 Physics for the Life Sciences III 4 Q.H.
(Prereq. PHY 1201)

Topics include temperature, gas laws, properties of liquids (surface tension and osmotic pressure), properties of solids, thermal physics, Coulomb's law, atomic and nuclear physics.

PHY 1209 Basic Physics I 4 Q.H.
(For Respiratory Therapy students only.)

Topics include the physical properties of gases and condensed matter, force and pressure, hydrostatics, ideal and real gases, condensation and evaporation, surface tension, osmosis and fluid flow. Laboratory is an integral part of the course.

PHY 1221 Physics for Engineering Students I

4 Q.H.

(Prereq. MTH 1123 or equiv. may be taken concurrently)

The first quarter of a four-quarter sequence intended primarily for engineering students, this course covers mechanics, kinematics, dynamics, Newton's laws, work, energy, linear momentum, collisions.

PHY 1222 Physics for Engineering Students II

4 Q.H.

(Prereq. PHY 1221; MTH 1124 or equiv. may be taken concurrently)

A continuation of PHY 1221, this course focuses on rotational dynamics, angular momentum, statics, harmonic motion, wave motion, sound, and optics.

PHY 1223 Physics for Engineering Students III

4 Q.H.

(Prereq. PHY 1222; MTH 1125 or equiv. may be taken concurrently)

A continuation of PHY 1222, the focus of this course is on electricity, electrostatics, Gauss's law, electric fields, potential, capacitance, resistance, current Ohm's law, circuits, the magnetic field.

PHY 1224 Physics for Engineering Students IV

4 Q.H.

(Prereq. PHY 1223; MTH 1126 or equiv. may be taken concurrently)

A continuation of PHY 1223, this course covers induction, inductance, and energy in the magnetic field; electromagnetic waves; exponential processes; and elementary thermodynamics.

PHY 1231 Physics for Science Majors I 4 Q.H.

(Prereq. MTH 1143 or equiv. may be taken concurrently)

Topics include mechanics: kinematics, Newton's laws, circular motion, work energy, linear momentum. To take the laboratory for this course, register for PHY 1531 concurrently. (II)

PHY 1232 Physics for Science Majors II 4 Q.H.

(Prereq. PHY 1231; MTH 1144 or equiv. may be taken concurrently)

Topics include rotational motion, angular momentum, harmonic motion, wave motion, sound, heat and thermodynamics, kinetic theory. To take the laboratory for this course, register for PHY 1532 concurrently. (II)

PHY 1233 Physics for Science Majors III 4 Q.H.

(Prereq. PHY 1231; MTH 1145 or equiv. may be taken concurrently)

Topics include electricity and magnetism; circuits; electromagnetic waves; topics in modern physics. To take the laboratory for this course, register for PHY 1533 concurrently.

PHY 1241 Physics for Computer Science Majors I

4 Q.H.

(Prereq. Two quarters calculus)

The first quarter of a three-quarter sequence. Topics include kinematics, dynamics, Newton's laws, gravity, work, energy, momentum, and collisions.

PHY 1242 Physics for Computer Science Majors II 4 Q.H.

(Prereq. PHY 1241 and three quarters calculus)
The second quarter of a three-quarter sequence. Topics include circular and rotational motion, oscillations, waves, atomic physics, astronomy and cosmology, and relativity and its application to nuclear physics.

PHY 1243 Physics for Computer Science Majors III 4 Q.H.

(Prereq. PHY 1242)
The third quarter of a three-quarter sequence. Topics include electricity and magnetism, semiconductors and semiconductor devices.

PHY 1251 Physics Review for Engineering Students 6 Q.H.

(Prereq. One year of college physics; knowledge of elementary calculus)

This course offers an intensive review for students who have had previous college physics courses not equivalent to the engineering sequence PHY 1221-PHY 1224. Topics include fundamentals of mechanics, electricity, and magnetism with emphasis on the use of vectors and elementary calculus. Passing this course is equivalent to passing PHY 1223 and PHY 1224.

Introductory Physics Laboratories

PHY 1194 Physics Laboratory I* 2 Q.H.

(Prereq. PHY 1191; PHY 1192 concurrently; B.E.T. majors only)

This course covers experiments from various physics topics that have been covered in PHY 1191 and, concurrently, in PHY 1192.

PHY 1195 Physics Laboratory II* 2 Q.H.

(Prereq. PHY 1194, PHY 1192; PHY 1193 concurrently; B.E.T. majors only)

This course is a continuation of PHY 1194, with experiments from topics in PHY 1192 and PHY 1193.

PHY 1501 Physics Laboratory for the Life Sciences I 1 Q.H.

(Prereq. PHY 1201 concurrently)

This course is the first quarter of a two-quarter laboratory sequence accompanying PHY 1201 and PHY 1202.

PHY 1502 Physics Laboratory for the Life Sciences II 1 Q.H.

(Prereq. PHY 1501; PHY 1202 or PHY 1203 concurrently)

This course is a continuation of PHY 1501.

PHY 1521 Physics Laboratory for Engineering Students I 1 Q.H.

(Prereq. PHY 1223)

This course is the first of a two-quarter laboratory sequence in which the student performs experiments from various fields of physics.

PHY 1522 Physics Laboratory for Engineering Students II 1 Q.H.

(Prereq. PHY 1521 and PHY 1224)

This course is a continuation of PHY 1521.

PHY 1531 Physics Laboratory for Science Majors I 1 Q.H.

(Prereq. PHY 1231 concurrently)
Focus is on laboratory experiments related to topics covered in PHY 1231.

PHY 1532 Physics Laboratory for Science Majors II 1 Q.H.

(Prereq. PHY 1531; PHY 1232 concurrently)
Focus is on laboratory experiments related to topics covered in PHY 1232.

PHY 1533 Physics Laboratory for Science Majors III 1 Q.H.

(Prereq. PHY 1531; PHY 1233 concurrently)
Focus is on laboratory experiments related to topics covered in PHY 1233.

Advanced Physics and Astronomy Courses

PHY 1301 Intermediate Mechanics 4 Q.H.

(Prereq. PHY 1232 and PHY 1233; MTH 1243 concurrently)

Topics include classical mechanics in two and three dimensions; a review of Newton's laws; special emphasis on conservation theorems for energy, momentum and angular momentum; harmonic and wave motion.

PHY 1302 Electric and Magnetic Fields 4 Q.H.

(Prereq. PHY 1301; MTH 1244 concurrently)

This course focuses on the basic concepts of electric and magnetic fields, including electric and magnetic fields in free space and materials; Maxwell's equations in integral form.

PHY 1303 Modern Physics 4 Q.H.

(Prereq. PHY 1233, PHY 1224, or equiv.)

The course provides a review of experiments demonstrating the atomic nature of matter, the properties of the electron, the nuclear atom, the wave-particle duality, spin, and the properties of elementary particles. The course discusses, mostly on a phenomenological level, such subjects as atomic and nuclear structure, properties of the solid state, and elementary particles.

PHY 1304 Mathematical Physics 4 Q.H.

(Prereq. PHY 1233 and MTH 1244; MTH 1246 concurrently)

Topics include review of linear algebra and vector calculus; special functions and partial differential equations of physics; potential theory; functions of a complex variable.

PHY 1305 Thermodynamics and Kinetic Theory

(Prereq. PHY 1233 or PHY 1224; MTH 1244) 4 Q.H.

Topics include First and Second Laws of Thermodynamics; entropy and equilibrium; thermodynamic potentials; elementary kinetic theory; statistical mechanics and the statistical interpretation of entropy.

PHY 1311 Physics Review for Re-entry Students(Prereq. Two years of physics) **4 Q.H.**

This is a review course on the material covered by PHY 1401, PHY 1305, and PHY 1404. Topics include vector kinematics; generalized coordinates; Lagrange equations; harmonic and coupled oscillators, wave equation; physical optics, interference, diffraction, optics of solids, lasers; entropy and equilibrium, thermodynamic potentials; elementary kinetic theory; statistical mechanics.

PHY 1401 Classical Mechanics**4 Q.H.**

(Prereq. PHY 1301 and MTH 1245)

This course covers advanced topics in classical mechanics, including vector kinematics; harmonic oscillator and resonance; generalized coordinates; Lagrange's equations; central forces and the Kepler problem; rigid body motion.

PHY 1402 Electricity and Magnetism I**4 Q.H.**

(Prereq. PHY 1302; PHY 1304 or equiv.)

The first of a two-quarter sequence in electromagnetic theory, this course covers Maxwell's equations and their experimental basis; electrostatics and magnetostatics; the electromagnetic field in empty space; electromagnetic waves.

PHY 1403 Electricity and Magnetism II**4 Q.H.**

(Prereq. PHY 1402 or equiv.)

A continuation of PHY 1402, this course focuses on energy and momentum in the electromagnetic field; electrodynamics; the interaction of matter and the field; radiation.

PHY 1404 Wave Motion and Optics**4 Q.H.**

(Prereq. PHY 1302)

Topics include harmonic and coupled oscillators, wave equation; geometrical and physical optics; interference, diffraction, optics of solids, amplification of light; lasers.

PHY 1411 Introduction to Astrophysics and Cosmology**4 Q.H.**

(Prereq. Three quarters of elementary physics)

The purpose of this course is to introduce the student to current ideas in astrophysics and cosmology, with emphasis on recent advances in this field. Topics include tools of the astronomer (gamma-, X-, UV-, optical-, infrared-, radio-telescopes, spectroscopes, spacecrafts, etc.); solar system; stellar properties (site luminosity); stellar spectra; Hertzsprung-Russell diagram; stellar energy sources (gravitational, nuclear); evolution of stars (birth, main sequence, red giants, white dwarfs, planetary nebulae, supernovae, neutron stars and pulsars, black holes and gravitational collapse); methods of interstellar and intergalactic distance measurement; our Milky Way galaxy; extragalactic objects (galaxies, clusters of galaxies, radio galaxies, quasars); cosmology (Olber's paradox; recession of galaxies, big bang theory, cosmic background radiation, formation of galaxies, the future of the universe).

PHY 1412 Plasma Physics**4 Q.H.**

(Prereq. PHY 1224 or PHY 1302 or equiv.)

The aim of this course is to introduce the student to the study of plasma physics. The course will develop the fundamentals of plasma physics in a manner that does not require an extensive background in advanced physics.

PHY 1413 Introduction to Nuclear Physics

(Prereq. PHY 1303)

4 Q.H.

Topics include nuclear structure, nuclear masses, radioactivity, nuclear radiation, interaction of radiation and matter, detectors, fission, nuclear forces; elementary particles.

PHY 1414 Introduction to Solid State Physics**4 Q.H.**

(Prereq. PHY 1303 or CHM 1383; PHY 1305 or equiv.)

This course offers a semiclassical treatment of the thermal, magnetic, and electrical properties of crystalline solids. Topics include X-ray diffraction and the reciprocal lattice, elasticity and lattice vibrations, specific heat, properties of insulators, magnetism in insulators and metals, introduction to the band theory of metals.

PHY 1415 Quantum Mechanics I**4 Q.H.**

(Prereq. PHY 1303 or CHM 1383; PHY 1304 or equiv.)

The first of a two-quarter sequence in quantum mechanics, this course focuses on observation of macroscopic and microscopic bodies, the uncertainty principle, wave-particle duality, probability amplitudes, Schrodinger wave theory, one-dimensional problems.

PHY 1416 Quantum Mechanics II**4 Q.H.**

(Prereq. PHY 1415)

A continuation of PHY 1415, this course covers discrete and continuous states, Schrodinger equation in three dimensions, angular momentum, general theory of quantum mechanics, applications.

PHY 1551 Electronics for Scientists I**4 Q.H.**

PHY 1551 and PHY 1552 form a two-quarter sequence covering electronic techniques for experimental research in many different fields of science. Topics include principles of semiconductor devices; analog techniques (amplification, feedback, integration); digital techniques (counting, multiplexing, logic); design of electronic subsystems (analog-to-digital converters, phase-sensitive detectors, data-logging systems); understanding specifications of commercial electronic equipment. Lab examples make use of up-to-date integrated and discrete devices such as are currently used in the electronic industry.

PHY 1552 Electronics for Scientists II**4 Q.H.**

(Prereq. PHY 1551)

This course is a continuation of PHY 1551.

PHY 1555 Wave Laboratory**4 Q.H.**

(Prereq. PHY 1302 or PHY 1224)

This course offers a general treatment of the problems of mechanical and electromagnetic radiation as wave phenomena. Topics include the differential wave

equation and its application to selected topics; interference and diffraction theory from the standpoint of the Huygens-Fresnel and Kirchhoff formulations; selected experiments in acoustics, optics, and microwaves to illustrate these problems.

PHY 1557 Advanced Physics Laboratory 4 Q.H.
(Prereq. PHY 1551 and PHY 1552)

This course presents special projects in modern experimental physics; including electronic instrumentation used in measuring physical quantities and use of microprocessors.

PHY 1561 Project Laboratory 4 Q.H.
(Prereq. Permission of instructor)

This course allows students to select and carry out individual projects involving instrumentation and computation. The projects involve the development of some aspect of instrumentation and/or computation in an ongoing research project, and the preparation of a

final report. The student will be supervised by the project leader and the course instructor. Although the course carries 4 Q.H. credit, it is taken in successive winter and spring quarters.

PHY 1811 (1812, 1813) Independent Study 1 Q.H.

PHY 1821 (1822, 1823) Independent Study 2 Q.H.

PHY 1831 (1832, 1833) Independent Study 3 Q.H.

PHY 1841 (1842, 1843) Independent Study 4 Q.H.

PHY 1885, PHY 1886, PHY 1887 Junior-Senior Honors Program (each) 4 Q.H.

For prerequisites and other details, see the section on the Junior-Senior Honors Project on page 1.

Political Science

Please note some courses in the College of Arts and Sciences are duplicated in different departments or colleges, or within a department. You may not receive credit for two such courses. If you have a question about whether one course does overlap with another, please consult the departments involved and the Dean's Office before taking the course.

Roman numerals at the end of course descriptions refer to *Core Curriculum* categories listed on pages 1-2.

POL 1110 Introduction to Politics 4 Q.H.

This course offers a broad-based introduction to contemporary political science. Areas covered include a consideration of basic concepts in political analysis (e.g., power, authority, and sovereignty); the role of governmental institutions in the making of public policy; public opinion and processes of political representation; contemporary political ideologies; and the scope and methods of political science. (II)

POL 1111 Introduction to American Government 4 Q.H.

The course provides an analysis of the American governmental and political processes by focusing on constitutionalism, liberties, institutions, and political behavior. (II)

POL 1112 Introduction to International Relations 4 Q.H.

The course focuses on elements of international relations, including sovereign power, and limitations on the behavior of nation-states. International law, diplomacy, the politics of international economic relations, and contemporary problems in international relations—peace and war, the arms race, detente, human rights, technology, population, and neoimperialism—will be covered. (II)

POL 1113 Introduction to Foreign Governments and Societies 4 Q.H.

(Formerly Introduction to Comparative Government)
The course offers a comparative study of parliamentary democracy in Western Europe; Communist totalitarianism in the Soviet Union, China, and Eastern

Europe; and variations of these governmental systems in the "third world" countries of Asia, Africa, and the Middle East.

POL 1260 Public Policy Analysis 4 Q.H.

An analysis and evaluation of public policy in the United States.

POL 1261 Public Administration 4 Q.H.
(Prereq. POL 1111)

Introduction to the theory and practice of public administration, with special emphasis on the generalities of institutions, processes, and behavior of bureaucratic organizations.

POL 1262 Organization Theory 4 Q.H.

Provides a broad overview of organization theories, their history, and development. Specific attention is given to developing a paradigm for public organizations that focuses on the relationships of economic, democratic, bureaucratic, technological, and humanistic imperatives. The student will prepare a research paper and consider the implications of this paradigm for future organizations.

POL 1266 Public Personnel Administration 4 Q.H.
(Prereq. POL 1261)

Designed to be an overall introduction to the field of public personnel administration. It includes examination of selected topics such as recruitment, selection, classification, case development, equal opportunity, public employee unionism, and collective bargaining.

POL 1267 Public Budgeting 4 Q.H.

(Prereq. POL 1261)

Focuses on the function of budgeting in a variety of governmental contexts, specifically, the appropriations process, the budget as a management tool, and the public policy impacts of the budget. Budgeting techniques are emphasized within this context.

POL 1300 Conceptual Foundations of Contemporary Political Analyses 4 Q.H.

The course provides an introduction to the conceptual problems associated with the study of politics, including scientific method and a general overview of various methodological perspectives (e.g., systems theory, game theory, and survey analysis) as practiced by contemporary political scientists.

POL 1301 Research Methods I 4 Q.H.

The course offers an introduction to the principal quantitative methods used in political analysis, public administration, political behavior, international relations, and policy sciences. Emphasis is on basic statistical techniques, survey methods, and SPSS programming.

POL 1302 Research Methods II 4 Q.H.

(Prereq. POL 1301)

This is an intermediate course in methods of quantitative analysis. The primary statistical topics to be covered include significance testing, bivariate regression and correlation, and multiple regression and correlation. In addition, students will be taught elementary computer skills and the use of the programming language Statistical Package for the Social Sciences (SPSS) to calculate advanced statistics. This course will emphasize the practical application and understanding of statistical techniques by providing numerous examples in the areas of political behavior, public opinion, and public policy analysis.

POL 1303 Political Behavior 4 Q.H.

(Prereq. POL 1110)

This course examines selected topics in contemporary political science from a political behavior perspective. Topics include political attitude formation and change, ideology, socialization, public opinion and voting behavior, political campaigning, political violence, and empirical democratic theory.

POL 1304 Practical Politics 4 Q.H.

(Prereq. POL 1111)

This course is designed to accentuate and systematically treat some of the problems of organizing for effective citizen action, partisan and nonpartisan, at the grass-roots level. An exploration of roles in political campaigning.

POL 1306 Politics in Western Europe 4 Q.H.

(Prereq. POL 1113)

The course offers a comparative analysis of political culture, federal and unitary forms of government, and executive-legislative relations on the national level in England, France, and West Germany.

POL 1307 European Political Parties 4 Q.H.

(Prereq. POL 1113)

The focus of this course is on political party organization and voter behavior in England, France, and Germany, with emphasis on party ideologies, strategies, campaigns, and elections, as well as socialization. Recruitment, and participation of voters in the political process.

POL 1308 The Politics of Poverty 4 Q.H.

This course is concerned with what is referred to as the poverty system: how and why there is poverty, how it affects people's lives, and how it can be eliminated. As a discussion-centered course, relying also on simulations, small-group work, and experience-based learning, it examines the relations between poverty, racism, and the economic, political, and administrative systems. A number of alternatives will be evaluated and an opportunity provided for clarifying individual assumptions and feelings about poverty.

POL 1309 The Politics of Imperialism 4 Q.H.

(Prereq. POL 1112)

The course focuses on the political dynamics of penetration of foreign economies and foreign politics, considering such elements as military intervention, foreign aid, and the impact of the multinational corporations.

POL 1310 American Ideology 4 Q.H.

An analysis of the main American ideologies, including liberalism, neoliberalism, conservatism, neoconservatism, nationalism, etc. Examination of the historic roots of each ideology and its impact on American politics. An attempt to understand the ongoing interaction of political ideology and the political process in contemporary American society. (V)

POL 1312 Politics and the Mass Media 4 Q.H.

This course analyzes several facets of the mass media; the role of newspapers, radio, and television in public opinion formation; their use and effectiveness in political campaigns; their objectivity and/or bias in reporting the news; their impact on political parties and the distribution of power between Congress and the President.

POL 1313 International Organization 4 Q.H.

(Prereq. POL 1112)

The course focuses on development of international organizations with special emphasis on the United Nations system. (Public Administration elective)

POL 1315 The Politics of the Criminal Justice System 4 Q.H.

(Prereq. POL 1111 or POL 1377)

This course focuses on the criminal justice system from arrest by police to appeal to the Supreme Court of the United States. The roles of police, lawyers, judges, prosecutors, juries, and correction officers are examined.

POL 1316 Contemporary Revolutionary Politics 4 Q.H.

(Prereq. POL 1112 or POL 1113)

Examination of political development in selected revolutionary societies, including Cuba. (VI)

POL 1317 Law and Society 4 Q.H.

(Prereq. Open only to upperclass, nonpolitical-science majors.)

This course examines the theory and practice of the American legal process and its impact on values. Also an analysis of the impact on these values of the military-industrial-technological complex.

POL 1318 State and Local Government 4 Q.H.

(Prereq. POL 1111)

This course introduces students to the political and administrative context of state and local government and surveys the structure, function, and politics of states and localities within the context of the United States federal system. (Public Administration elective)

POL 1320 Political Parties, Pressure Groups, and Elections 4 Q.H.

An analysis of political parties and pressure groups in the American political system, with attention given to policy making, elections, voting behavior, and state and national political trends.

POL 1321 Eurocommunism 4 Q.H.

This course presents a study of the domestic and foreign policies of the Spanish, French, and Italian Communist parties with special attention to their relations with the international communist movement.

POL 1322 World Politics 4 Q.H.

The course examines political continuum and change in the international system by observing both traditional actors, such as nation-state, and modern actors, such as multinational corporations, in relation to their goals and the means each uses to attain them. Primarily for non-political-science majors; not open to anyone who has taken POL 1112, Introduction to International Relations.

POL 1324 Urban Politics 4 Q.H.

The course provides an analysis of the political, administrative, economic, and social dynamics of urban areas from a historical perspective. (Public Administration elective)

POL 1325 Human Services Administration 4 Q.H.

The ways in which human services are provided by the political, economic, and bureaucratic systems to low-income citizens are studied. The course is designed to help students develop knowledge of the public policy process, human services organizations, and delivery systems, and awareness of their values and potential as human services professionals. A discussion-based course for students interested in human services. (Public Administration elective)

POL 1327 Sex Roles in American Politics 4 Q.H.

The course explores the relation between what is and what ought to be—and why—in the roles of women in American politics. Topics include the traditional roles of women in politics, the suffrage movement, the woman as citizen and voter, the role of sex in achieving power and in political efficacy, and the place of

women in "new politics." Political action to promote women's issues and modern feminism will also be covered. (VI)

POL 1328 Women in Public Management 4 Q.H.

Examination of the challenges and problems commonly experienced by female managers working in complex, public sector organizations. Emphasis will be placed on strategies for elevating such problems. Special attention will be focused on career development for women in managerial roles.

POL 1329 American Social Welfare Policy 4 Q.H.

This course is an introduction to social welfare policy, with emphasis on programs and services in the contemporary United States. Theoretical frameworks for analyzing social welfare policy will be discussed; attention will then focus on the substantive areas of welfare, mental health, and social security. Various issues and processes related to the design, administration, and implementation of social welfare policy in the context of the American socio-political system will be explored. A final segment of the course will focus on social welfare policy-making under the Reagan administration.

POL 1330 Minority Politics 4 Q.H.

This course examines the voting behavior of minority populations in the United States and political developments and trends that impact on the nation's minority communities.

POL 1331 Science, Technology, and Public Policy 4 Q.H.

The purpose of this course is to consider the effects of science and technology on politics and policy-making in America and how politics influences science and technology. We will focus on the differences between scientific and democratic values and definitions of rationality, the nature of public problems, and why some problems are easier to "solve" than others. The course will look particularly at such issues as nuclear power, recombinant DNA, abortion, and medical research, and will address the question of who should decide such complex matters.

POL 1332 Government and Politics of Japan 4 Q.H.

(Prereq. POL 1112 or POL 1113) Examines Japan's political development from the Meiji Restoration to the present, exploring the unique form of democratic government practiced in Japan and evaluating the effects of Japanese political theory, war, the American occupation, the Emperor, and Japanese political and cultural values on Japan's political institutions. Japan's present and future impact on the international system is also considered. (IV)

POL 1333 Introduction to Urban and Regional Planning 4 Q.H.

The historical influences on American urban and regional planning and the contemporary institutional, theoretical, and technical issues in planning.

POL 1335 The American Presidency 4 Q.H.

This course examines the presidential electoral process and the constitutional and extraconstitutional powers of the American President. It studies presidential leadership styles and analyzes the relationship between the executive branch and Congress, the Court, the bureaucracy, and the media.

POL 1336 American Constitutional Law 4 Q.H.

(Prereq. POL 1111 and junior or senior status)
Employing excerpts of United States Supreme Court decisions and other reading materials, this course attempts an analysis of some of the theoretical, structural, and substantive issues inherent in and relevant to the American constitutional system.

POL 1337 United States Foreign Policy 4 Q.H.

The course examines formulation and conduct of foreign policy; role of the United States in politics since 1945.

POL 1339 Current Political Issues 4 Q.H.

The course provides an analysis of the constitutional and political background of selected contemporary public issues. Primarily for non-political-science majors.

POL 1340 Communism in Eastern Europe 4 Q.H.

(Prereq. POL 1113)

The course focuses on the Communist governments of Eastern Europe, with emphasis on their growing independence from Soviet Russia. Recent political change, economic liberalization, and new orientation in foreign policy.

POL 1342 Crisis and Conflict in Black Africa 4 Q.H.

Using films, maps, news clips, discussions, and readings, this course will explore contemporary politics in African nations south of the Sahara. Among the countries studied are South Africa, Nigeria, Kenya, and Ethiopia. Topics include apartheid, colonialism, Afro-Marxism, chieftancy, development, and Pan-Africanism.

POL 1343 Politics and Violence in Northern Ireland 4 Q.H.

This course will analyze the causes of violence in Northern Ireland. Although historical, sociological, and economic roots of the conflict will be considered, the major focus will be on politics. The international dimension (the roles of southern Ireland, the United States, etc.), paramilitary organizations, legal political parties and groups, and potential solutions will be discussed. Comparative parallels will be drawn, including possible lessons for the United States.

POL 1345 Government and Politics in the Middle East 4 Q.H.

Approaches the political, economic, military, and ideological factors within the Arab states and Israel, inter-Arab politics, the Arab-Israeli conflict, and the great power rivalry in the region. (VI)

POL 1347 Soviet Government 4 Q.H.

(Prereq. POL 1113)

The course offers a study of Soviet political origins and behavior, with emphasis on recent changes in

the party and state apparatus, the economy, and the administration of justice.

POL 1348 Soviet Foreign Policy 4 Q.H.

The course focuses on the evolution of Soviet foreign policy since 1917, with emphasis on the development of the international communist movement and the onset of the East-West ideological conflict.

POL 1350 American Legislative Process 4 Q.H.

This course explores the nature, style, and process of the American Congress. It focuses on congressional actors, their needs, relations with constituents, and policy-making roles, as well as the structures and processes embedded into the institution itself. Finally, the course examines the role Congress plays in American politics and how the institution fares in the 1980s.

POL 1351 Techniques and Practices of Public Management 4 Q.H.

This course is oriented toward practical skills and techniques of public management and employs the case method in examining typical management problems at different levels of government. Time and resource management for public sector managerial personnel is also covered.

POL 1353 Law and Personal Morality 4 Q.H.

An examination of the use of political power to enforce standards of personal morality and behavior in contemporary American society. Subjects considered will include pornography, sexual privacy and expression, Sunday closing laws, abortion, and prostitution.

POL 1354 The Politics and Policies of Developing Nations 4 Q.H.

The course presents a survey of recent political and related change among third-world countries of Africa, Latin America, and Asia. Topics included are the heritage of colonialism and achievement of independence, the realities of cultural pluralism, revolution and political violence, institution building, political leadership and role of ideology, political parties, the military in politics, and the international aspects of political modernization. (VI)

POL 1355 Ethnic Conflict in International Perspective 4 Q.H.

The course offers a comparative study of ethnic conflict, with its religious, linguistic, racial, and economic roots, in such places as Nigeria, Cyprus, Canada, Northern Ireland, Belgium, and the United States. World order implications and Great Power consequences of such confrontations will also be studied.

POL 1357 Totalitarianism and Dictatorship 4 Q.H.

(Prereq. POL 1113)
The course presents an analysis of totalitarianism, dictatorship, and autocracy, including study of historical background, characteristics, theories of origin, nature, and significance; evaluation of techniques, ideologies (e.g., Marxism-Leninism), policies, and institutions. Particular attention is given to Soviet and German experiences.

POL 1359 Comparative Public Administration**4 Q.H.**

The course provides a comparative study of the approaches to public administration in selected democratic governments in the United States and Europe.

POL 1360 The Politics of Revolution and Change**4 Q.H.**

(Prereq. POL 1113)

The course offers an analysis of revolution and change, contemporary and historical, with attention to both theory and practice. Topics discussed include major trends in contemporary politics and society, and the relationship between political change and technological, scientific, or social change.

POL 1362 Civil Liberties**4 Q.H.**

(Prereq. POL 1350 and junior or senior status)

Employing United States Supreme Court decisions and other reading material, this course examines the substantive and procedural guarantees of the Bill of Rights and the Fourteenth Amendment and their relation to a liberal democratic society.

POL 1363 Public Management**4 Q.H.**

(Prereq. POL 1261)

What problems are entailed in the management of public agencies? How do public managers seek to solve these problems? These questions are explored through the use of descriptive, analytical, and case materials. (Public Administration elective)

POL 1364 Business and Government Relations**4 Q.H.**

(Prereq. POL 1111 or POL 1377)

The course offers a survey of the relation between economic developments and political processes in the United States. Among the topics considered are government planning of the economy, monopoly and government regulation, government programs to promote social welfare, and the impact of Federalism on the political-economic system.

POL 1365 British Politics and Government I**4 Q.H.**

A study of British political culture, in particular traditional political values, attitudes, and expectations; the historical, economic, societal, and cultural determinants of them; and their impact on the working of the British political system today. Special attention is given to recent changes in British thought and society, i.e., in the period from World War II to the present, and how they too have affected contemporary British political behavior.

POL 1366 British Politics and Government II**4 Q.H.**

A study of British political participation that includes voting, interest groups, and political parties; and governmental institutions such as the monarchy, the Cabinet, Parliament, and the civil service. Special attention is given to leadership decision-making, in particular ministerial accountability, and to current public policy in the areas of the economy, social security and welfare, and Ireland.

POL 1368 Government and Politics of Latin America**4 Q.H.**

The governmental systems, political parties, socio-economic problems and foreign policies of Latin American states. Focus will be on political change. (IV)

POL 1369 Political Violence**4 Q.H.**

This course analyzes political violence in its various contemporary forms (e.g., revolution, genocide, political terrorism, military overthrows, etc.). The causes and consequences of political violence are assessed (from both practical and moral points of view), and strategies for preventing and resolving political violence are considered.

POL 1370 Political Theory**4 Q.H.**

(Prereq. Junior or senior status or consent)

An analytic approach to the study of key political concepts: power, equality, freedom, authority, obligation, ethics, law, rights, punishment, state, sovereignty.

POL 1371 Government and Politics of China**4 Q.H.**

Topics include government and party organization, socioeconomic problems and policies, concentrating attention on the influence of history, technology, and ideology as determinants of attitudes and behavior. (IV)

POL 1372 China's Foreign Relations**4 Q.H.**

The course examines China's traditional view of international relations and its modification first by contact with the West and later, by Marxism-Leninism. The course investigates China's role in changing the international system to accord more with its perspectives on sovereignty and equality and the principles of socialist internationalism.

POL 1373 Pre-Modern Political Thought**4 Q.H.**

(Prereq. Junior status or permission of instructor)

An analytical and historical examination of the great political thinkers and the main trends of political thought from the Grecian age to the Renaissance. (V)

POL 1374 Modern Political Thought**4 Q.H.**

(Prereq. POL 1373)

An analytical and historical examination of the great political thinkers and the main trends in political thought from the Renaissance to the twentieth century. (V)

POL 1376 American Political Thought**4 Q.H.**

The contributions to political theory of the main social, economic, political, intellectual, and philosophic movements in America from the colonial period to the present.

POL 1377 American Political Process**4 Q.H.**

The course offers a general analysis of the American political system with emphasis on the topic of civil liberties. Not open to political science majors or anyone who has taken POL 1111, Introduction to American Government.

POL 1378 Contemporary Political Thought**4 Q.H.**

Analysis of current ideals, ideologies, and political movements, including existentialism, neo-Marxism, black power, women's liberation. The decline of ideology and behavioralism.

POL 1380 Governmental Accounting**4 Q.H.**

(Prereq. POL 1261)

Basic accounting principles and methods used by government agencies including the utilization and interpretation of financial statements, auditing, and the application of electronic data processing in government record keeping. (Public Administration elective)

POL 1382 Intergovernmental Relations**4 Q.H.**

An analysis of the relationships existing among national, state, and local levels of government in the United States and of the changing patterns of those relationships.

POL 1384 Arab-Israeli Conflict**4 Q.H.**

The Arab-Israeli confrontation has its own dynamics, and its nature has changed through the decades. This course analyzes its interaction with the internal politics of the Arab states and Israel, Pan-Arab politics, and the role of the great powers in the region.

POL 1385 Housing and Community Development**4 Q.H.**

The course offers a review of historical metropolitan growth patterns and the influence of public policy on the development of American cities. Topics such as urban renewal, suburbanization of low- and moderate-income housing and new communities are discussed. (Public Administration elective)

POL 1386 International Law**4 Q.H.**

(Prereq. POL 1112)

Topics include territory and jurisdiction of states, treaties, recognition, peaceful settlement of disputes, resort to force.

POL 1388 Political Polling and Survey Research**4 Q.H.**

(Prereq. POL 1301)

Survey research is the most common approach to program evaluation. This course involves an examination of the entire survey research process, including survey design, sampling, questionnaire design, survey administration, data processing, and data analysis. Some statistical analysis will also be involved.

POL 1410 Seminar in American Government**4 Q.H.**

(Prereq. Senior political science major and permission of instructor)

An in-depth study of selected topics in American government.

POL 1411 Seminar in International Relations**4 Q.H.**

(Prereq. Senior political science major and permission of instructor)

This course offers an in-depth study of selected topics in international relations.

POL 1412 Seminar in Comparative Politics**4 Q.H.**

(Prereq. Senior political science major and permission of instructor)

This course offers an in-depth study of selected topics in comparative politics.

POL 1413 Senior Seminar in Political Science

(Prereq. Senior political science major)

4 Q.H.

This course offers an in-depth study of selected topics in political science.

POL 1415 Seminar in Public Law and Social Issues**4 Q.H.**

(Prereq. Junior or senior status and permission of instructor)

This course examines some of the continuing and perplexing social problems through the media of legal writings and recent court cases. Issues to be discussed include abortion, euthanasia, family planning, criticism of public officials, political activism, the right of privacy, obscenity, racial and economic discrimination.

POL 1800, POL 1801, POL 1802 Directed Study**(each) 4 Q.H.**

This course offers independent work on chosen topics under the direction of members of the department and is limited to qualified juniors and seniors with approval of instructor.

POL 1803 Internship in Politics**4 Q.H.**

With department approval, students may engage in a political or governmental internship under the supervision of a faculty member. Junior or senior status normally required.

POL 1804 Practicum In Lobbying**4 Q.H.**

(Not open to Freshmen and Sophomores)

This is a fieldwork course in which students will become involved in supervised lobbying activity on the national or state levels of politics. This course may be taken only once for academic credit.

POL 1806 Political Science Honors Program**Minicourse****1 Q.H.**

This course deals with specialized topics in political theory.

POL 1807, POL 1808, POL 1809, PL 1810**Junior-Senior Honor Program****(each) 4 Q.H.**

For details contact the Honors Office, 183 Holmes.

Psychology

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Roman numerals at the end of course descriptions refer to *Core Curriculum* categories listed on pages 1-2.

For additional information concerning psychology department programs and course scheduling information, inquire at the main office of the Psychology Department, 282 Nightingale Hall (telephone number 437-3076). Note that courses are listed by psychology department category and are not exclusively in numerical sequence.

Courses

PSY 1110 Perspectives in Psychology 4 Q.H.

A survey of the fundamental principles and issues of the major areas of contemporary scientific psychology. The study of psychology is approached as a method of inquiry as well as a body of knowledge using five different perspectives: neurobiological, psychodynamic, behavioral, cognitive, and humanistic. This course is recommended for Psychology majors. Since the content is similar to that of PSY 1111, students can only receive credit for *one* of the two courses. (II)

PSY 1111 Foundations of Psychology I 4 Q.H.

A survey of the fundamental principles and issues of the major areas of contemporary scientific psychology. The study of psychology is approached as a method of inquiry as well as a body of knowledge. Areas emphasized are biological bases of behavior, principles of learning, psychological testing, personality dynamics, psychopathology, and therapeutic approaches. Since the content of this course is similar to that of PSY 1110, students can receive credit for only *one* of the two courses.

PSY 1112 Foundations of Psychology II 4 Q.H. (Prereq. PSY 1111)

A continuation of PSY 1111 with emphasis on the areas of lifespan development, sensory and perceptual processes, cognition and memory, language, motivation and emotion, and social influences on behavior.

PSY 1211 Statistics in Behavioral Science II 4 Q.H.

The course offers an introduction to descriptive statistics (scales of measurement, frequency distribution and graphs, measures of central tendency, dispersion and correlation, standard scores, and the unit normal curve), and probability theory (permutations, combinations, and the binomial theorem).

PSY 1212 Statistics in Behavioral Science II 4 Q.H. (Prereq. PSY 1211)

The course offers a general presentation of hypothesis testing, including parametric and nonparametric tests, with emphasis on formulating hypotheses and choosing appropriate scales of measurement, tests, and confidence levels. (Continuation of PSY 1211)

PSY 1218 Psychology of Women 4 Q.H.

This course is designed to introduce the student with

little or no background in psychology to the current theories and research on the psychology of women. Psychological, biological, and social influences on gender differences, gender roles, and gender stereotypes will be critically examined in the light of scientific evidence and individual experience. Their consequences for society will be assessed. The unique perspective generated in the field of the psychology of women will be used to evaluate traditional research methods in psychology as well as the major psychological theories formulated to explain women and the differences between women and men. Emphasis will also be placed on fostering critical-thinking skills.

PSY 1231 Learning and Motivation I 4 Q.H. (Prereq. PSY 1112)

This course offers an introduction to the basic learning and motivational principles that permit humans and animals to adapt effectively to a changing environment. Emphasis is placed on research and theories of operant and Pavlovian conditioning, with discussions of discriminations and generalization, avoidance and punishment, acquired motivational states (e.g., addiction), concept formation, biological constraints on learning and behavior, animal cognition, and other related topics. Lectures also relate learning and motivational principles to our understanding and treatment of behavioral, affective, cognitive, and motivational disorders.

PSY 1241 Human Behavioral Development I 4 Q.H.

This course examines the change in behavioral processes from conception up to, but not including, adolescence. Topics include: biological bases of behavioral development, sensory and motor function, learning, socialization, speech and language, imitation, moral development, dependency, aggression, and abnormalities of development. Major theories of development and child-rearing practices are examined. Although relevant comparative research is considered, the emphasis is on human development.

PSY 1242 Human Behavioral Development II 4 Q.H. (Prereq. PSY 1241)

This course continues the examination of behavioral change from adolescence to death. Topics include: biological, intellectual, learning and memory, personality, and social processes. Different methods of study and theories of adult development are assessed.

PSY 1243 Infant Development 4 Q.H.
(Prereq. PSY 1241 or ED 1102)

During the first two years of life, the basic physical perceptual, cognitive and emotional capacities emerge and interact in the development of such complex behaviors as visually guided movement, the formation of social attachments, and the emergence of language. This course provides an introduction to this critical period of human development, emphasizing how the infant's biological inheritance interacts with the physical and social environment in the generation of these important abilities and behaviors.

PSY 1261 Bilingualism 4 Q.H.

Half of the world's population is bilingual, that is, uses two or more languages on a regular basis. And yet bilingualism remains a poorly understood phenomenon surrounded by a number of myths, such as: bilinguals are found in bilingual countries and are equally fluent in their languages; bilingual children suffer from cognitive impoverishment; bilingual education hinders the assimilation of minority groups. The course will review all aspects of bilingualism (in the world, in society, in the child and the adult), as well as discuss topics such as biculturalism and language change.

PSY 1262 Language and Cognition 4 Q.H.
(Prereq. PSY 1112)

This course provides a basic introduction to human cognition (cognitive psychology) and the psychology of language (psycholinguistics). On the subject of cognition, the course emphasizes the mental processes involved in the acquisition, organization, and use of knowledge, including pattern recognition and memory. On the subject of psycholinguistics, it focuses on the nature and structure of language, various theories of human production and perception of language, and related experimental findings.

PSY 1271 Social Psychology 4 Q.H.
(Prereq. PSY 1112 or permission of instructor)

The course provides an introductory survey of social psychology. Topics include aggression, attribution, attitude formation, change, measurement, conformity, impression formation, group processes (social facilitation, deindividuation, etc.).

PSY 1272 Personality I 4 Q.H.
(Prereq. PSY 1112)

The course offers a systematic study of the normal personality and its development. Topics include behavioral, dynamic, and constitutional determinants, assessment of personality, research, and a survey of the major theories of personality.

PSY 1273 Personality II 4 Q.H.
(Prereq. PSY 1272)
Continuation of PSY 1272.**PSY 1331 Learning and Motivation II 4 Q.H.**
(Prereq. PSY 1231)

Continuation of PSY 1231 with emphasis on biological constraints on learning, e.g., punishment, anxiety, aggression, addiction; and other topics of individual interest.

PSY 1332 Programmed Learning 4 Q.H.
(Prereq. PSY 1231)

Development of programmed instruction has been one of the products of basic behavioral research. After students master relevant basic research literature, they are expected to review and evaluate existing instructional programs in light of the underlying behavioral principles. Programs are selected from those useful in the normal and special education classrooms, i.e., complex academic subject matter and individual problem areas.

PSY 1351 Neuropsychology I 4 Q.H.
(Prereq. PSY 1112)

This is an introduction to the relation between brain function and human behavior. Topics include how nerve cells function individually and work together both in small networks and in the nervous system; the structure of the nervous system; how our sense organs provide the nervous system with information about the outside world; how the brain controls movement; and how psychological concepts such as perception and learning may relate to brain activity.

PSY 1352 Neuropsychology II 4 Q.H.
(Prereq. PSY 1351)

A continuation of PSY 1351 in which the relation between brain function and more complex behavior is examined. Topics include the multiple kinds of sensory information and the neuronal and hormonal control systems involved in eating, drinking, sexual and reproductive behavior; how brain activity is related to emotion, sleep, wakefulness, and memory; disorders of behavior and of the brain.

PSY 1353 Comparative Psychology and Ethology 4 Q.H.

(Prereq. PSY 1112 or permission of instructor)

This introductory-level course in animal behavior surveys a wide range of species (reptiles, birds, fish, and mammals, including humans) to find similarities and differences in the behavioral processes and physiological mechanisms by which individual organisms and species adapt to their environments. The first section of the course focuses on adaptive specializations exhibited by animals in learning about their environments during early development and as adults. The second section examines problems of social organizations at the individual level: how animals communicate with each other and transmit "cultural" skills; mechanisms underlying cohesion and dispersal (e.g., reproduction and aggression); and the adaptive advantages of being social or asocial. The final section provides students with an unusual opportunity to apply concepts and experimental methods they have learned by actually doing a short field study of animal behavior at The Boston Zoological Park.

PSY 1354 Functional Neuroanatomy 4 Q.H.
(Prereq. PSY 1112)

Aimed primarily at the study of the human nervous system, this course focuses on study of the cellular structure of the nervous system, including a cell's

organelles, followed by a short study of the embryological development of the nervous system. Systematic study of the nervous system beginning in the spinal cord and ending in the cerebral cortex with primary emphasis on fiber connections. A continuous attempt to correlate structure with behavioral activity.

PSY 1361 Introduction to Phonetics 4 Q.H.

The course offers an introduction to the nature of the speech signal from articulatory, perceptual, and acoustic points of view. Topics include sound measurement, sound classes, and a survey and comparison of speech sounds used in languages in the world. Stress, tone, and intonation. Phonetic classification and transcription of speech as practical tools for students of languages, linguistics, and speech and hearing science.

PSY 1362 Child Language 4 Q.H.

(Prereq. PSY 1262, linguistics, or permission of instructor)

The course provides a study of the manner in which language develops in children.

PSY 1363 Linguistics of American Sign Language 4 Q.H.

(Prereq. ASL 1101 or permission of instructor)

Offers students an introduction to basic issues in linguistics through examination of the structural properties of American Sign Language and its comparison with other languages having similar properties. Topics to be covered include phonology (formational properties of signs), morphology (word formation rules, derivation, and inflection; complex verbs, classifiers, verb modulations), semantics (the meaning structure of signs), syntax (the structure of the ASL sentence), and discourse and narrative structure (the structure of ASL utterances in terms of old versus new information and the structure of ASL narratives).

PSY 1364 Cognition 4 Q.H.

(Prereq. PSY 1262)

Continuation of PSY 1262, focusing on cognition. This course emphasizes the analysis of perception, memory, and learning within an information-processing framework. Also considered are selected topics in cognitive development.

PSY 1365 Language and the Brain 4 Q.H.

Linguistic behavior from a neuropsychological viewpoint. Models of how the nervous system, and the brain in particular, controls the production, perception, and internal manipulation of language. Localization of cerebral functions and hemispheric lateralization. Experimental and clinical evidence for functional models. Aphasia and other language pathologies. Schizophrenic language. Evidence from "slips of the tongue." The bilingual brain. Comparisons of speech, sign language, and writing systems. Interpretation and translation.

PSY 1373 Abnormal Psychology I 4 Q.H.

(Prereq. PSY 1272 or PSY 1241)

This course offers a study of the abnormal personality, including a historical survey and a discussion of such issues as anxiety, defense mechanisms, and the criteria of psychopathology. Also examined are the symptomatology, etiology, and dynamics of neuroses (hysteria, phobia, obsession, and compulsion) and of psychosomatic disorders. Details of case histories will be discussed.

PSY 1374 Abnormal Psychology II 4 Q.H.

(Prereq. PSY 1373)

The course offers a survey of psychological and somatic therapies. Symptomatology, etiology, dynamics, and therapy of psychoses (schizophrenia, paranoia, mania, depression). Sociopathic and organic disorders.

PSY 1381 Sensation 4 Q.H.

(Prereq. PSY 1112; PSY 1351 is highly recommended)

The course provides an introduction to the study of our senses, with emphasis on hearing, touch, taste, and smell. Students have the opportunity to learn how we measure our sensory abilities. Findings are closely related to the functioning of sensory organs—ears, skin, mouth, and nose—and of the sensory nervous system.

PSY 1382 Perception 4 Q.H.

(Prereq. PSY 1112; PSY 1351 is highly recommended)

The course offers a study of our awareness of the world around us exemplified primarily by visual perception. Topics are explored in group discussions and include light, visual sensory mechanisms, color vision, illusions, consciousness, and dreams.

PSY 1431 Behavior Therapies 4 Q.H.

(Prereq. PSY 1112)

The course offers a study of successful projects that have provided effective remediation and rehabilitation in institutions for the mentally ill, the mentally retarded, and the developing human (schools).

Directed Study— Honors Courses

**PSY 1890, PSY 1891, PSY 1892, PSY 1893,
PSY 1894 Directed Study** (each) 4 Q.H.

(Prereq. Permission of instructor)

This course offers independent work under the direction of the Psychology Department, usually in a research project in one of the department laboratories. Faculty members normally require completion of advanced laboratory courses in the area of research interest, but this is a matter of individual discussion. Students interested in Directed Study should consult a departmental adviser.

PSY 1895, PSY 1896, PSY 1897, PSY 1898, PSY 1899
Junior-Senior Honors Program

(each) 4 Q.H.

For details contact the Honors Office, 183 Holmes.

Laboratories

PSY 1511 Experimental Design in Psychology

(Prereq. PSY 1112 and PSY 1212) 4 Q.H.*

The course focuses on the experimental method in the design, execution, analysis, and reporting of psychological investigations of humans and animals.

PSY 1531 Learning and Motivation Laboratory

(Prereq. PSY 1212 and PSY 1231) 4 Q.H.*

Through direct experience, students have the opportunity to gain proficiency in laboratory analysis of behavior and in evaluating common generalizations about human behavior. Students are expected to design and perform experiments in animal and human learning, memory, decision processes, concept formation, and other topics of individual interest.

PSY 1532 Behavior Modification Laboratory 4 Q.H.*

(Prereq. PSY 1531 or PSY 1351, and permission of instructor)

Students have the opportunity to participate in education and training of severely and profoundly retarded residents at the Walter E. Fernald State School. Learning theory principles are applied to teaching new skills and to treating inappropriate behavior. Students have the opportunity to write individual and group training programs, implement them in a classroom setting, and learn methods for evaluating program success.

PSY 1551 Laboratory in Neuropsychology 4 Q.H.*

(Prereq. PSY 1651 or PSY 1351 or permission of instructor)

Students will conduct three separate research projects of which the first two will use rats and the third will use humans as subjects. The three projects will investigate: 1) the effects of intracranial electrical stimulation of reward systems in the rat brain; 2) electroencephalogram (EEG) records of different phases of sleep; and 3) lateralization of function between the left and right cerebral hemispheres. Students will carry out all the phases of experimentation including surgery, behavioral tests, frozen sections and staining of brain tissue in preparation for histological examination of electrode placements, and data analyses. This course will end with oral presentations by students of their research findings.

PSY 1552 Sensory Physiology Laboratory 4 Q.H.*

(Prereq. PSY 1351)

Experiments are performed to illustrate the physiological techniques in sensory psychology including electrical recordings of some activities that accompany visual, auditory, and cutaneous activity.

PSY 1562 Laboratory in Psycholinguistics

(Prereq. PSY 1211 and PSY 1262) 4 Q.H.*

The course provides students the opportunity to

acquire first-hand experience in conducting research on problems in the psychology of language. Students are involved in all aspects of each experiment, including collecting and analyzing data and preparing reports. Classroom discussion focuses both on the particular experiments conducted and on the implications of the experimental findings for broader issues in the psychology of language.

PSY 1564 Cognition Laboratory

4 Q.H.*

(Prereq. PSY 1212 and PSY 1262)

Experiments related to topics in PSY 1262 and PSY 1364.

PSY 1571 Laboratory in Social Psychology

(Prereq. PSY 1212 and PSY 1271)

4 Q.H.*

The course provides an introduction to the methods of social-psychological research. The purpose of the course is to assist students in developing the ability to read published social research with a critical eye, to pose questions in a testable manner, to apply experimental methods to social research, and to express themselves in APA-journal style.

PSY 1572 Personality Laboratory

4 Q.H.*

(Prereq. PSY 1212 and PSY 1272)

The course provides an introduction to the methods and areas of personality research. Includes a discussion of problems of measurement, control, and interpretation. Representative published experiments will be examined critically. Students are expected to design, collect data for, assess, and write up several experiments, including one original research project.

PSY 1581 Sensation and Perception Laboratory

4 Q.H.*

(Prereq. PSY 1212 and PSY 1381 or PSY 1382)

Experiments involving precise measurements of both physical and psychophysical phenomena, including auditory function, color vision and after-effects, muscular sensation, tactile sensitivity, and adaptation to perceptual distortions.

Seminars

PSY 1631 Seminar in Behavior Theory

4 Q.H.

Topics vary from term to term. For specific information, call ext. 3076.

PSY 1632 Seminar in Behavior Modification 4 Q.H.

(Prereq. PSY 1531)

Topics in behavior modification are discussed in a seminar format.

PSY 1651 Seminar in Neuropsychology

4 Q.H.

(Prereq. PSY 1351)

For students who desire intensive study, discussion, and practice in laboratory studies of physiological variables. Topics include evolution of the nervous system, sensory and motor mechanisms, motivation and emotion, sleep, attention and perception, learning, and memory.

* Lab fee required.

PSY 1652 Sensory Physiology Seminar 4 Q.H.
(Prereq. PSY 1351)

The course concentrates on the psychophysiology of various sensory systems, vision and hearing in particular. Discussions are concerned with the problem of accounting for sensory phenomena in terms of physiological concepts.

PSY 1661 Seminar in Psycholinguistics 4 Q.H.
(Prereq. PSY 1262 or permission of instructor)

The seminar focuses on the on-line processing of language. Recent research is discussed in light of such questions as: While listening to someone speak, how does the listener process the information carried by the acoustic signal? What is the role of linguistic rules, prediction strategies, and contextual information? And when speaking, what processing stages are involved from the moment the speaker decides to speak to the moment the articulators start functioning? These and other questions will be discussed, as will experimental techniques and current trends in psycholinguistics.

PSY 1662 Seminar in Cognition 4 Q.H.

Topics vary from term to term. For specific information, call ext. 3076.

PSY 1663 Seminar in Linguistics 4 Q.H.
(Prereq. ENG 1118 or PSY 1262 or PSY 3116 or ASL 1102)

This course will vary in topic from year to year but will always involve an overview of the classic literature in some area of linguistics. Possible topics include the history of linguistic theory, phonetics and phonology, syntax and semantics, American Sign Language linguistics, and special topics focusing on a single issue of linguistic theory.

PSY 1671 Seminar in Social Psychology 4 Q.H.
(Prereq. PSY 1271 and SOC 1135, or permission of instructor)

Students are expected to examine and present in class their findings on a particular topic in social psychology, for example, attribution, aggression, conformity, attitude-behavior relationship.

PSY 1672 Seminar in Clinical Psychology and Personality 4 Q.H.
(Prereq. PSY 1373 or permission of instructor)

The course offers seminar presentations of topics relevant to understanding the normal and disturbed personality. Possible topics: specialized assessment procedures, cognitive styles in personality, temperament, hypnosis, anxiety, aggression, specialized clinical syndromes, and the development of conscience.

PSY 1681 Seminar in Sensation and Perception 4 Q.H.
(Prereq. Permission of instructor)**Topics in Psychology Series (TIPS)**

General interest, no-prerequisite courses in psychology.

PSY 1214 Psychological Testing: Science and Politics 4 Q.H.

After an analysis of the basic principles of psychological test construction and the characteristics of various tests, the course focuses on the political and sociological problems associated with psychological assessment. Emphasis is on the uses and misuses of tests; social, cultural, and racial issues in intelligence testing; and the heredity-environment controversy in I.Q. testing.

PSY 1215 Sexual Behavior 4 Q.H.

This course is concerned with the sexual activities of the human male and female from infancy to adulthood. It considers the importance of sexual factors in the life history of the individual, statistical surveys of sexual behavior, and direct observational measures of sexual responding. Included are the nature of love, responses to pornography, prostitution, bisexuality, male and female homosexuality, rape, child abuse, and sexual therapy.

PSY 1216 Marriage and the Family 4 Q.H.

Problems typical in some marriages are discussed, including alcoholism, sexual inadequacy and dissatisfaction, separation and divorce, death of a spouse, and child rearing.

PSY 1217 Man in Isolation 4 Q.H.

Children raised in the wilds, children isolated in society, and adults placed in experimental isolation are the subjects of this course, designed to reveal what part of human nature actually requires interaction with other human beings, what part is programmed biologically, and how these work together to make us human.

PSY 1263 Body Language 4 Q.H.

This course examines the messages we send by posture, facial expression, gesture, gait, and interpersonal distance. It goes on to explore how power, status, and gender affect nonverbal communication.

PSY 1264 Animal Communication 4 Q.H.

How do animals communicate and how are we attempting to communicate with them? This course examines and compares the communication systems used by animals such as birds, bees, whales, dolphins, and the primates, including chimps and humans. From the four perspectives of biology, linguistics, psychology, and sociology, recent attempts to teach other primates some of our languages (sign language, speech, manipulation of tokens or computers) are revealing what it means to be a human in the animal kingdom.

PSY 1265 Your Memory: How It Works 4 Q.H.

This course provides an analysis of the operation of memory in humans and animals, including factors from learning and physiology. Special attention is given to human verbal and conceptual memory, and classic and modern systems for memory extension and improvement. Practical exercises on methods of remembering are included.

PSY 1274 Psychology and the Law**4 Q.H.**

How does psychology enter into the various phases of the judicial process? The class traces the effects of psychological factors through the course of a trial, including such issues as accuracy of eyewitness identification, plea bargaining, jury selection, persuasion tactics in the courtroom, presumption of innocence, jury size, jury decision rules, and sentencing and punishment.

PSY 1281 Magic and Illusion**4 Q.H.**

This course investigates visual, auditory, and kinesthetic illusions and constancies, demonstrating the manner in which we can be misled by our perceptions and how professionals, such as magicians (who will demonstrate certain topics), take advantage of this fact.

Anthropology

Please note some courses in the College of Arts and Sciences are duplicated in different departments or colleges, or within a department. You may not receive credit for two such courses. If you have a question about whether one course does overlap with another, please consult the departments involved and the Dean's Office *before* taking the course.

Roman numerals at the end of course descriptions refer to *Core Curriculum* categories listed on pages 1-2.

SOA 1100 Introduction to Anthropology**4 Q.H.**

The course provides a survey of basic anthropological concepts, including human evolution, culture, and linguistics, with comparative analysis of such socio-cultural institutions as kinship, economy, polity, and religion, especially in non-Western societies.

SOA 1101 Cultural Meaning and Everyday Experience**4 Q.H.**

This course uses anthropological ideas to study the underlying patterns of meaning that lie below the surface of everyday thought and behavior. Topics include study of daily routines, leisure activities, joking and humor, speech patterns, current folklore and mythology, nonmonetary economic transactions, kinship and friendship relations, and religion and ritual.

SOA 1102 Evolution and Society**4 Q.H.**

This course focuses on human social and cultural evolution and the theories that account for it.

SOA 1103 Culture in Transition**4 Q.H.**

The course offers analysis of the changing patterns in social, economic, and political institutions. Modern social trends are discussed.

SOA 1104 Cultures of the World**4 Q.H.**

This course is designed to introduce the student to societies around the globe. By intensively examining a number of societies, the student will be exposed to the factors enabling cultures to develop their unique patterns. Primary emphasis will be on developing the ability to compare and contrast societies in a controlled and valid way, as well as looking at societies in a constant attempt to adapt to changing environments. (II)

SOA 1120 Visual Anthropology: Camera on Culture**4 Q.H.**

(Prereq. SOA 1100)

This course explores the anthropologist's use of film to gather information and analyze cultural subsystems. In addition to reading about and viewing films on particular peoples, a "laboratory" aspect of the

course involving the use of tape and video equipment introduces students to the field.

SOA 1125 Introduction to Archaeology**4 Q.H.**

This course offers a survey of the history of development of archaeology focusing intensively on key sites in the new and old worlds. Film and slides of sites and artifacts are used extensively.

SOA 1135 Language and Culture**4 Q.H.**

Topics include the function of language in human society and an introduction to the relation between the patterns of language and the patterns of culture.

SOA 1145 Peoples Who Live by the Sea**4 Q.H.**

Course material includes examination of fishing, trade, shipbuilding, recreation, smuggling, and other uses of the sea; the social ecology, lifestyles, economics, and politics of seacoast perspectives of evolutionary and community systems theory. Research projects dealing with current issues, site visits, and field trips are required.

SOA 1146 Peasant Society and Culture**4 Q.H.**

Focuses on the dilemma of attempts by peasant societies to preserve traditional cultural forms in the face of increasing external economic and political pressures. Covers the origins of the peasantry, diversity and uniformity in peasant societies, the transformation of peasants into the modern urban and rural poor, and the politics of peasant protest and revolution. (IV)

SOA 1155 Individual and Culture**4 Q.H.**

This course explores the ways in which individuals are shaped by society and the ways in which they can effect change.

SOA 1160 Sex, Sex Roles, and Family**4 Q.H.**

The course analyzes popular and scientific notions about sex and family by examining the social patterning of interactions in our culture, other cultures, and other species. Emphasizes the changing relations between men and women. (See also SOC 1160.)

SOA 1185 Aggression
4 Q.H.

Focuses on concepts of aggression and how they affect our understanding of human society. Draws on materials collected by anthropologists, psychologists, and ethnologists.

SOA 1220 Culture and Mental Illness
4 Q.H.

This course offers discussions and analyses of the nature and meaning of culture, the role of culture in personality formation, culture and anxiety, anthropological approaches to the "normal" and the "abnormal," and the question "Is mental illness psychological fact or cultural fiction?"

SOA 1265 Primitive Religion
4 Q.H.

The course focuses on nature and institutionalization of "primitive" religion. Topics include exploration of religious concepts and movements in relation to social, economic, and political organization.

SOA 1266 Folklore
4 Q.H.

This course focuses on cross-cultural comparisons of oral narrative traditions and literary sources. Various methods of analysis of folklore and its place and function in society and culture are examined. Identification of and methods for collecting material from local currently active folklore traditions are given special attention.

SOA 1267 The Anthropological Study of Myth
4 Q.H.

The course focuses on theories concerning the nature and meaning of myth. Exploration of the function of myth in social and cultural change. The structural analysis of myth.

SOA 1275 The Anthropology of Music
4 Q.H.

This course offers an examination of music in a prehistoric and cross-culture perspective, with emphasis on ethnomusicology and the comparison of Western and non-Western musical culture. Functions and social contexts of musical composition and performance; the ethnography of musical performance groups; the analysis of music as a form of communication.

SOA 1300 Cultural Ecology
4 Q.H.

The course offers an introduction to questions of human adaptation to environment and the effect of different adaptations on natural systems.

SOA 1301 Human Origins
4 Q.H.

The course offers an intensive look at the data on fossil remains and contemporary primates, which are essential for an understanding of human physical and behavioral evolution. Efforts are made to bring the student into direct contact with primary materials. (II)

SOA 1310 Social Change and Economic Development
4 Q.H.

Selected topics in the socioeconomic transformation of the world produced by the industrial revolution. Focuses on the impact of the modern world system on traditional cultures and contemporary Third World countries.

SOA 1320 Anthropology Methods
4 Q.H.

The course examines theory and practice of methods of field research and data analysis. Students have the opportunity to take part in a field project.

SOA 1335 Language and Communication
4 Q.H.

The course focuses on human communication, including language, theories of the evolution of language; language and kinesics, semiotics, social class, linguistic nationalism; linguistic problems in modernization.

SOA 1345 Urban Anthropology
4 Q.H.

The course explores selected problems in anthropological studies in urban societies.

SOA 1355 Political Anthropology
4 Q.H.

The course investigates the origin and growth of the institutions of civilization. Topics include specialization and social stratification in the dynamics of traditional civilizations. Some special topics of contact and change.

SOA 1356 The Anthropology of Law and Conflict
4 Q.H.

Topics include settling disputes in stateless societies; forms and mechanisms of social control; law as an indicator of cultural and social norms; the study of conflict resolution as an ethnographic tool. Some field research and analysis are required.

SOA 1360 Economic Anthropology
4 Q.H.

The course examines types of economic systems in simple societies: reciprocal, redistributive, market exchange; economic relations as part of social relations; land-tenure systems, credit systems, savings mechanisms. The transition from subsistence to cash economics.

SOA 1420 Kinship and Society
4 Q.H.

This is a course for the advanced student only. A variety of kinship systems, their terminological and structural components, and the way in which they articulate with other social institutions are studied.

SOA 1425 Tribal Societies and Cultures
4 Q.H.

The course focuses on the structures and institutions of bands, tribes, and chiefdoms; comparative and functional studies of tribal societies and the dynamics of change under contact situations.

SOA 1430, SOA 1431, SOA 1433, SOA 1434,
SOA 1435, etc.
(each) 4 Q.H.

These are ethnographic area courses (New World Indian, African, Chinese, Indian, Mediterranean, etc.) which will be offered as the department's resources permit.

SOA 1432 People and Culture of China
4 Q.H.

This course introduces students to anthropological analysis in the context of Chinese ethnographic material. Topics covered may include kinship, markets, economics and social class, rituals, both folk religions and elite beliefs. The cross-cultural approach used enables students to apply the analytical concepts of anthropology not only to China but also to

their own culture, so that they may see that Chinese culture is different but the patterns in people's lives are dominated by themes that are shared by humans everywhere. (IV)

SOA 1470 Religion and Myth 4 Q.H.
Nature and institutionalization of primitive, ancient, and contemporary religions. Exploration of religious concepts and movements in relation to social, religious, and political organization.

SOA 1800, SOA 1801 Directed Study 4 Q.H.
(Prereq. Department approval)
The course offers independent work on a chosen topic under the direction of members of the department. Limited to qualified seniors preparing in anthropology with approval of the department chairperson.

SOA 1820, SOA 1821, SOA 1822, SOA 1823
Junior-Senior Honors Program (each) 4 Q.H.
For details contact the Honors Office, 183 Holmes.

SOA 3100 Theory 4 Q.H.
Qualified undergraduates may wish to take this graduate school course. Permission of the instructor is required for registration.

INT 1340 Cultural Aspects of International Business 4 Q.H.

(Prereq. Middler standing)
Using a managerial perspective, this course covers issues that arise when a firm moves from its home country to a host country that may have a different national culture. Although it will usually assume the perspective of the United States-based firm that operates abroad, it will spend some time on what happens to other national firms operating in the United States and in third-country environments. The way in which "corporate culture" evolves, in the context of national culture and the impact on managers, will be a central issue.

Sociology

SOC 1100 Introduction to Sociology 4 Q.H.
The course explores basic concepts and theories concerning the relation between individuals and society. Emphasis on the influence of culture, social structure, and institutions in explaining human activity. Social groups, socialization, community, class, power, and social change, among other substantive issues, will be discussed and analyzed.

SOC 1101 The Sociology of Everyday Life 4 Q.H.
The course examines the development, application, and consequences of rules for everyday activities. (e.g., walking, talking, eating, drinking, sitting, smoking, laughing, crying, and sleeping); the effects of artifacts, culture, space, and territory on these activities, on social life, and on the expression of emotions.

SOC 1102 Social Inequality and Communication 4 Q.H.

The course provides an analysis of the ways in which groups and institutions, in both their ritual and everyday activities, communicate the idea of hierarchy and an individual's place in it through face-to-face interaction, formal communication, and the use of space and time. A dramaturgical approach to social organization with special emphasis on status images in the media and the communication of social place by service organizations and professional groups. Includes some content analysis and observational fieldwork.

SOC 1103 American Society 4 Q.H.
(Prereq. SOC 1100 or equiv.)

The course focuses on American society, culture, and major social institutions: economic, religious, governmental, familial, educational, welfare, and recreational; social classes and stratification, mobility, and individualism.

SOC 1104 Contemporary Japanese Culture and Society 4 Q.H.
Focus on contemporary Japanese urban society. Topics include: major values, family structure, sex roles, social control, the economy and the division of labor, mass media, religion, arts, and social problems.

SOC 1120 Sociology of Boston 4 Q.H.
(Does not meet elective requirement for sociology/anthropology major)

The course examines the city of Boston from the perspectives of environmental development, neighborhood and intergroup relations, institutional services, and symbolic meanings. The city is a laboratory for exploring people's search for a lifestyle and the satisfaction of their needs. Field trips with workbook are required. Documentary and literary sources for term paper report are used.

SOC 1121 Doing Sociology 4 Q.H.
A research approach to sociology. Focus on students' participation in their own learning about sociology as a body of knowledge and as a method of studying social life. Students will use the computer during the course. (II)

SOC 1125 Social Problems 4 Q.H.
(Prereq. SOC 1100 or permission of instructor)

The course offers analysis of five major sociological perspectives on social problems (pathology, disorganization, value conflict, deviance, and labeling); the conditions under which certain recurrent events, activities, and persons become redefined as social problems (e.g., mine disasters, marijuana smoking, and alcoholism); study of the typical responses to social problems and their consequences.

SOC 1135 Social Psychology 4 Q.H.

(Prereq. SOC 1100 or permission of instructor)

The course offers a sociopsychological approach to individual behavior in social contexts; introduction to basic concepts, such as socialization, identity, self-concept, role conflict, attitudes and attitude measurement, and groups and group processes as well as an overview of major theoretical orientations and important substantive topics.

SOC 1140 Sociology of Prejudice 4 Q.H.

(Prereq. SOC 1100 or permission of instructor)

This course examines factors in the development and maintenance of prejudice and discrimination. Topics include American race relations, anti-Semitism, sex roles, and stereotyping.

SOC 1145 Population and Society 4 Q.H.

The course examines traditional and contemporary approaches to human population and its control. Topics include factors affecting birth and death rates; societal implications of population quantity and quality in several situations, past and present; rural-urban migration and mobility; racial, genetic, stratificational components for population analysis. Public policies and responses to fertility control in several societies. International efforts to understand and generate action on population issues. (VI)

SOC 1146 Environment and Society 4 Q.H.

This course examines the complex relations between human populations and their environments. Issues such as energy, pollution, food supplies, resource availability, and conservation are treated as societal phenomena that involve human values and decision-making processes as well as technical information from a variety of scientific fields. The course will include practical experience in environmental problem solving. (VI)

SOC 1147 Cities and Society 4 Q.H.

(Formerly Urban Society)

Topics include the foundations of urban life in historical perspective; relation of city life to environment, population, social organization, technology and cultural values; growth trends, urbanization, urban planning, and citizen action.

SOC 1155 Sociology of the Family 4 Q.H.

Topics include the family as a social institution in several selected cultures; interrelations of the family and political, economic, and educational institutions; social nature of personality; role taking; individualism, mobility, and industrialism. (V)

SOC 1156 Violence in the Family 4 Q.H.

The course offers an examination of the physical, emotional, and sexual violence that occurs in families, with particular emphasis on child and spouse abuse. Definitions, prevalence, causes, prevention, and treatment of specific cases of domestic violence are analyzed. Social policy issues and problems of legal intervention are a primary focus.

SOC 1160 Sex-Gender Roles in a Changing Society 4 Q.H.

The course offers review and application of theories about the determinants of sex statuses and roles, from historical and cross-cultural perspectives. The focus of the course is on women's status in different institutional structures of American society.

SOC 1165 Students, Schools, and Society 4 Q.H.

(Prereq. SOC 1100)

This course emphasizes the role of education in processes of socialization, social mobility, social control, and social change. Do social characteristics (sex, race, class, age, physical status) influence the school experience? Do schools provide opportunity and initiate change, or do they perpetuate the status quo in economic, political, and social life? Who goes to school, where, for how long, and with what result? How does educational advantage or disadvantage get translated into jobs and social status? Students are encouraged to draw on their own experiences to develop paper topics.

SOC 1170 Race and Ethnic Relations 4 Q.H.

(Prereq. SOC 1100 or equiv.)

The course focuses on racial and religious groups, particularly with reference to the United States; special emphasis on historical development, specific problems of adjustment and assimilation, and specific present-day problems and trends.

SOC 1171 Race and Ethnic Relations: A World Perspective 4 Q.H.

(Formerly Comparative Race/Ethnic Relations)

This course offers a cross-cultural analysis of race and ethnic relations in Western and non-Western societies. Explanations of race and ethnic relations in terms of contemporary developments, world problems, and ideological conflicts are included.

SOC 1175 Sociology of Work 4 Q.H.

This course examines the varieties of work in American society, from blue collar to managerial and professional occupations. Topics include job dissatisfaction and professional burnout, changing shape of the labor market, women and work, participation and humanization of work, the impact of computers. (VI)

SOC 1176 Sociology of Business/Industry 4 Q.H.

The course focuses on the role of industry in modern society; similarities and dissimilarities among industrial societies, bureaucracy and its alternatives, unions, supervision democracy and manipulation, the worker on the assembly line, sabotage of the organization, and the role of wages and alienation.

SOC 1177 Social Roles in the Business World 4 Q.H.

The course offers an analysis of the social structure of corporate and business life in contemporary America. Case studies from major accounting and/or industrial firms are presented and discussed. The "career line" in the world of business and management will be examined with a special focus on age/sex, racial/ethnic, and class/income barriers.

SOC 1178 Women Working**4 Q.H.**

Differences in the labor force experience of men and women workers generally go unrecognized, and the work experience most common to women—household work—is rarely analyzed. This course will cover women's market and nonmarket activities, their rewards, and their problems, in addition to empirical and theoretical analyses of the work roles of women. Overall, the course will underscore the differences between work experiences of men and women.

SOC 1180 Sociological Perspectives on**Consumerism and Consumer Behavior****4 Q.H.**

The course offers an analysis of consumer-oriented issues, including interest groups, needs, values, institutional networks, decision-making processes, and situational impacts. Exploration of systemic benefits and costs of consumer-relevant actions.

SOC 1185 The Sociology of Deviance**4 Q.H.**

(Formerly Social Deviance)

The course explores the conditions under which people categorize others as different; processes by which persons so defined are assigned deviant status and assume appropriate roles and self-images; development of deviant careers and their relation to deviant subcultures; situations in which people transform deviant identity.

SOC 1186 Social Control I**4 Q.H.**

The course examines formation of social bonds and the conditions under which they are ruptured; the emergence of deviance as an interactional problem; individual and societal reactions to the most prevalent forms of deviant behavior. Analysis of agencies of social control, their definitions of problems, and responses to typical clients.

SOC 1190 Juvenile Delinquency**4 Q.H.**

The course examines the sociological and psychological approaches to and their implications for a typology of delinquency; problems of prevention, treatment, and rehabilitation.

SOC 1195 Drugs and Society**4 Q.H.**

The course offers an introduction to the sociology of drugs. The course first examines social definitions of drugs, conditions of their use, and socialization into drug use. It then considers deviant drug use and effects of social control on definitions and use. A range of licit and illicit drugs will be considered, but major emphasis will be given to alcohol, marijuana, and heroin.

SOC 1200 Sociology of Alcoholism**4 Q.H.**

The course focuses on social responses to deviant alcohol use. The course examines, in sequence, drinking cultures and drinking practices in the United States; processes by which people are labeled "alcoholics"; and the role of agencies of social control, such as the criminal justice system and the health care system, in labeling and in rehabilitation.

SOC 1201 Alcohol Use and Social Control**4 Q.H.**

All societies define and enforce rules on the use of alcohol. This course examines the conditions under

which alcohol use disrupts social life; the processes through which alcohol controls, informal and formal, come into being; the development changes and consequences of these controls. Case studies of Prohibition, regulation of the alcohol beverage industry, legal drinking age, drinking and driving, and public drunkenness will be included.

SOC 1202 Sociology of Drinking**4 Q.H.**

In most of the societies in the world, people drink alcoholic beverages. This course examines how different groups and societies organize drinking as a social act, and the consequences of that organization. It singles out for particular attention the cultural meaning assigned to drinking, the social elements found in all drinking situations, how members of social groups learn how to drink, and the social and psychological functions of drinking.

SOC 1205 Law, Crime, and Social Justice**4 Q.H.**

Analysis of the impact of the legal system on the creation and perpetuation of criminality in contemporary American society. Particular attention is devoted to the study of the creation of criminal law, the judicial process, and the role of law in the gap between crime and social justice. Field trips will focus on criminal arrangements, trials, and sentencing in the Boston Municipal Court and Suffolk Superior Court. Suitable for students in prelaw, criminal justice, political science, and allied fields.

SOC 1206 Class, Crime, and the Police**4 Q.H.**

This course summarizes the major psychological, social, biological, economic, and political theories about the cause of crime. It then applies these theories to the day-to-day operations of the police, courts, and prison system in the United States. Various attempts to lower the crime rate through such policies as "scared straight" programs, the death penalty, stricter and looser prisons, increased police presence, and behavioral conditioning will be examined.

SOC 1215 Medical Sociology**4 Q.H.**

(Prereq. SOC 1100 or permission of instructor)

The course provides an examination of the professions, training, institutions, and problems in health care, with an emphasis on those in the United States. Practical issues in the improvement of health care systems are considered.

SOC 1216 Health Care as a Social Issue**4 Q.H.**

(Prereq. SOC 1100 or permission of instructor)

The course explores the social and political dynamics of health care: who benefits from the system and defends it, who works for change, who wins and why. Topics include the social history of health care, occupational politics, community power structure and the health care setting, the planning and delivery of health services to "haves" and "have-nots," and the role of citizens in determining the future of health care through activism, lobbying, legislation, and participation in controlling the system. Case examples will be provided.

SOC 1217 Women, Health, and Social Change**4 Q.H.**

The course will examine how women have traditionally been viewed by the medical field and how reproduction and childbirth came to be defined as medical problems. It will also examine the implications for women in the changes that have taken place in health care, especially as these pertain to new reproductive frontiers and alternative health care facilities. The role of women in the health care professions will also be examined.

SOC 1220 Sociology of Mental Health**4 Q.H.**

(Prereq. SOC 1100 or equiv.)

The course provides a survey of sociological perspectives on mental health and mental disorder. Discussions, readings, and presentations explore the social history of mental illness, epidemiology, cross-cultural perspectives, patients' careers, social institutions of treatment, and policy implications. Areas of convergence between sociological concepts and psychiatry are examined.

SOC 1225 Aging and Society**4 Q.H.**

The course offers a survey of issues and questions on aging, with special attention to social and economic consequences of the aging process, including retirement and productivity, health care problems, nursing home residences, widower- and widowhood, and the approach of death. Examples relating to aging in other cultures are presented in a search for new answers to social problems of aging in the United States. Students have the opportunity to learn to anticipate, cope with, and even prevent problems of aging that concern self, family, and clients/patients.

SOC 1235 Death and Dying**4 Q.H.**

(Prereq. SOC 1100 or permission of instructor)

The course focuses on the treatment of death and dying, including problems faced by health care professionals, family members, institutions, the funeral industry, and the dying themselves. The course will discuss cross-cultural perspectives, the social distribution of mortality, the changing nature of death, and the ethical problems in determining life and death with particular attention to such issues as abortion, suicide, and ceasing medical intervention.

SOC 1240 Sociology of Human Service Organizations**4 Q.H.**

This course explores the contradiction between what human service organizations set out to do and what they actually accomplish. The course also explores how the goals of human service organizations are defined, how clients become labelled, and the societal constraints on clients, workers, and human service organizations.

SOC 1245 Sociology of Poverty**4 Q.H.**

The course offers an analysis of American poverty in historical perspective, drawing on comparisons with other countries. Critical evaluation of sociological research and theories relating to poverty. Consideration of causes and effects of poverty, as well as societal responses to poverty and its consequences.

Suitable for students in applied fields, such as nursing, criminal justice, education, allied health, premed, and prelaw.

SOC 1247 Food and Hunger**4 Q.H.**

Systematic examination of the social causes and consequences of hunger, and alternative approaches to solving world hunger.

SOC 1250 The Sociology of Private and Public Assistance**4 Q.H.**

The goal of this course is to help students understand why public and private assistance in the United States takes the form it does. Topics covered include the ideology behind the welfare system, the kinds of assumptions made about the poor, how other countries deal with the problem, the effects of poverty in the United States, and some explanations for its continuing existence.

SOC 1255 Sport in Society**4 Q.H.**

The course provides an analysis of the social origins and functions of leisure activities, with special emphasis on games and sports as forms of leisure. Considerable emphasis is given to cross-cultural and historical analysis as well as to the relation between leisure activities and various social institutions—economy, polity, family, and religion.

SOC 1275 Sociology of the Arts**4 Q.H.**

The course offers an examination of the relation between the social organization of society and the forms of art produced—the social role of the artist, how the arts are “manufactured” and distributed, the art consumer's relation to art and the artist, social support for the arts. The course deals with a variety of art forms, with emphasis on the performing arts.

SOC 1276 Sociology of Popular Culture**4 Q.H.**

A sociological analysis of popular culture, focusing on the relationship between pop culture and social institutions such as religion, the law, education, the economy, and the family; the organizations and artistic communities that produce pop culture such as the music industry, theatrical groups, advertising agencies; and the social roles and socialization processes associated with individual artists. Changes in popular culture are examined from the viewpoint of changes in the larger society.

SOC 1284 Technology and Careers of the Future**4 Q.H.**

Introduction to new technologies and their social impacts on work and careers in the future. Sociological and humanistic approaches to technical change will be examined in the shop floor, offices, and professions. Course will focus on issues of design and control, health, employment, and autonomy.

SOC 1285 Technology and Society**4 Q.H.**

Does society control technology or is technology directing society? Has technology become dehumanized? How valid is the doctrine of technological inevitability? Can the technological “fix” be viewed as a solution to social problems? Is technology itself a social problem? What can be expected of technology

assessment? What of the back-to-nature and anti-technology movements today: are they the waves of the future? These are some of the questions and issues that are discussed and analyzed. Students are expected to do considerable independent study and research.

SOC 1286 Science and Society 4 Q.H.

Science has had profound effects on our society, and scientists have seen the ways in which political, economic, and social forces have guided developments in their fields. Issues such as "responsibility" and "autonomy" created by this interdependence will be explored. Emphasis is on the social structures within which science operates and is communicated, and on science as an occupation and profession, as well as a system of thought and set of tools for producing knowledge.

SOC 1287 Society Tomorrow: Forecasting Alternative Futures 4 Q.H.

This course introduces students to the area of Social Futures or Future Studies. Included in the topics covered will be the major techniques used to forecast futures and the examination of specific scenarios and projections about the social world of tomorrow. Using the areas of energy and resources, robotics and the "information revolution," as well as modern weaponry and warfare, we will consider the major prospects and problems for society in the future.

SOC 1290 Military and American Society in a Nuclear Age 4 Q.H.

Keeping out of war, winning war, and keeping peace have been major concerns during the past forty-five years. In this course, we will investigate the relationship between military and society. Selected issues will include: 1) an analysis of the impact of the military on social institutions such as the family, polity, and economy; 2) an examination of the arms race and upheaval in social life; 3) the legitimization crisis of the U.S. military; 4) the role of women and minorities as reserve armies; and 5) military spending and domestic social problems.

SOC 1300 Classical Social Thought 4 Q.H.
(Prereq. Three sociology/anthropology courses)

The course examines the development of sociology from the history of social thought. The emergence of several schools, beginning with positivistic organicism and conflict theory.

SOC 1301 Current Social Thought 4 Q.H.
(Prereq. Three sociology/anthropology courses)

A seminar-lecture course in which formalism, social behaviorism, social action theory, and functionalism are studied critically.

SOC 1302 Female Perspectives on Society 4 Q.H.
(Formerly Feminist Perspectives on Society)

This course examines a sampling of the burgeoning feminist literature in the social sciences and in theory, focusing on at least three major tendencies in this literature: radical feminism, socialist feminism, and neo-Freudian feminism. Specific topics include the

origins and/or universality of women's oppression; women's work under capitalism; socialism and women's liberation; and family structure and the reproduction of gender. (VI)

SOC 1310 Class, Power, and Social Change 4 Q.H.

(Prereq. SOC 1100 and junior or senior standing in sociology/anthropology or permission of instructor)
The course focuses on theories of social equality and inequality as applied to the exercise of power and the growth and development of social movements and group conflict as seen from the point of view of large-scale social change. Required of majors. (V)

SOC 1320 Introduction to Statistical Analysis 4 Q.H.

(Prereq. SOC 1100 or permission of instructor)
This course examines the application to social data of the principles of measurement, probability, measures of centrality, tests of significance, and techniques of association and correlation.

SOC 1321 Research Methods I 4 Q.H.

(Prereq. SOC 1100 and SOC 1320, or permission of instructor)

This course introduces students to the research process through an examination of the rules of evidence in empirical research and the place of values. Students have the opportunity to learn how to design and critique types of sociological research, how to collect qualitative and quantitative data, and how to sample populations.

SOC 1322 Research Methods II 4 Q.H.

(Prereq. SOC 1100, SOC 1320, and SOC 1321, or permission of instructor)

Students are required to complete the research project begun in Research Methods I; practice coding, building indexes, scaling, table construction; introduction to use of the computer.

SOC 1323 Qualitative Research Methods 4 Q.H.

The course offers an introduction to sociological fieldwork—methods of gathering data by extended observation of and interaction with people in natural settings. Students will take part in a series of observations designed to teach the basic skills of open-ended interviewing, observing, recording, and analyzing data. The theoretical base will be symbolic interaction.

SOC 1324 Human Services Research and Evaluation 4 Q.H.

(Prereq. SOC 1320 or other statistics, SOC 1240, or permission of instructor)

This course covers basic issues in applied research and the evaluation of services, including attention to the purposes of evaluation, ethics, formulating questions and measuring answers, designing evaluations and planning oriented research, utilizing evaluation results, and the turbulent setting of action programs. Suitable for students majoring in human services, sociology, psychology, nursing, health education, and related fields.

SOC 1335, SOC 1336 Group Behavior I and II**8 Q.H.**

(Formerly Group Behavior—The Sociological Imagination)

The course explores how individuals interact in groups and how groups interact with each other. The reflexive self, social aspects of language, situational learning, group perspectives, careers, institutions, and worlds.

SOC 1337 Seminar in Social Psychology 4 Q.H.

Focus is on the interaction of psychological and group processes. Students are required to read original theoretical and research monographs in the field. Topics may include prejudice, reference groups, sex roles, conformity, leadership, aggression, communication, collective behavior, and achievement.

SOC 1345 American Demographics 4 Q.H.

This course is essentially an applied research experience in which students have the opportunity to study the major areas of demography. The focus of the course is on the resources of the U.S. Census Bureau and, in particular, the data products available from recent census surveys.

SOC 1346 Suburb and Metropolis 4 Q.H.

(Prereq. SOC 1100 or equiv.)

The course explores ecology of suburban and metropolitan growth, impact on center city and rural fringe, emergent lifestyles and institutional forms. Compares interdependence, issues of identity, autonomy, and accessibility. Analysis of different types of metropolitan political, social, and economic institutions. Prospects for regional action.

SOC 1347 Community Analysis 4 Q.H.

(Prereq. Permission of instructor or three sociology/anthropology courses)

This course explores types of human settlements, focusing on the interaction between people and their political, economic, and social environments. Topics include power structure and citizen action to influence institutions; skills in community analysis, including use of documents, survey, observation, and evaluation of needs and resources; strategies of conflict, cooperation, and negotiation to attain community and group ends.

SOC 1348 Seminar in Urban Studies 4 Q.H.

(Prereq. SOC 1147 or permission of instructor)

Interdisciplinary approaches to urban studies are compared according to problem areas and research methods. Students have the opportunity to extend previous term paper projects after exposure to social action and social systemic theoretical perspectives.

SOC 1355 Political Sociology: Who Gets What 4 Q.H.

(Prereq. Permission of instructor or four sociology/anthropology courses)

This course offers an examination of formal political structures and informal quasi-political groups. Topics include sociological analysis of ideology, class politics, mass movements, and the conflict of various

social and economic groups as they vie for political power and influence.

SOC 1360 Social Stratification: Class, Status, and Power 4 Q.H.

(Prereq. Permission of instructor or four sociology/anthropology courses)

Topics include theories of social inequality, concepts of social class, aspects of status and role difference, criteria for social mobility.

SOC 1365 Collective Behavior 4 Q.H.

Topics include the rise of new group forms in response to persistent social unrest; study of masses, crowds, and publics; analysis of specific instances of collective behavior such as race riots, wildcat strikes, prison revolts, and campus disorders.

SOC 1375 Sociology of Occupations and Professions 4 Q.H.

(Prereq. Permission of instructor or four sociology/anthropology courses)

Topics include the meanings of work; division of labor and specialization; analysis of occupational structure and patterns of recruitment, training, and career preferences; the classic professions and new trends in professionalization.

SOC 1376 Organization and Bureaucracy 4 Q.H.

Sociological study of organizations. Case studies of private corporations, federal bureaucracies, social service agencies, military-industrial complex, high-risk technological systems, unions. Recent theories of innovation, participation, and opportunity in complex organizations.

SOC 1385 Social Deviance II 4 Q.H.

The course offers an examination of the leading theories of deviance (anomie, subcultural deviance, labeling) and their principal variants; study of their assumptions, conceptions, propositions, and supportive evidence; analysis of empirical studies in each theoretical tradition.

SOC 1405 Sociological Theories of Crime 4 Q.H.

The course explores patterns and social forces involved in criminal behavior. Analysis of sociological theories of criminality and comparison of these with other explanations of crime.

SOC 1470 Sociology of Religion 4 Q.H.

(Prereq. SOC 1100)

The course offers a comparative and analytic treatment of religion as a social institution, focusing on the relations between religious organizations and other social institutions, with particular emphasis on the American experience. Religion as an agent of social change and stability is included.

SOC 1475 The Sociology of Mass Communication 4 Q.H.

(Formerly Mass Communication and Public Opinion)

Topics include factors in the formation and development of public opinion, the effect of television on children, mass communication as social organization, media-depicted images of society, the role of personal

influence, the process of rumor, the use of mass media by the poor, propaganda analysis, and the latent and manifest functions of mass communication.

SOC 1485 Computers and Society 4 Q.H.

(Prereq. Ability to program a computer)

Examines the impact of the computer "revolution" on the conditions of work and life in contemporary society and on legal and theoretical conceptions of human society and consciousness.

SOC 1500 Applied Sociology: Practice and Theory 4 Q.H.

The course provides an analysis of the conditions under which sociological knowledge is applied to social problems, the kinds of problems, and the degree of effectiveness of this application. Particular attention is paid to research and demonstration projects that derive from sociological theory.

SOC 1501 Social Policy and Social Intervention 4 Q.H.

(Formerly Social Control II)

The course focuses on study of the formation of social policies in response to social problems, analysis of policies and problems, supporters and opponents of policy change, conditions under which control agencies adopt new policies, and effects of policy change. Particular emphasis on case studies of social action and legal change.

SOC 1525 Comparative Human Services I 6 Q.H.

This course offers an intensive look at the American human services system. The course is designed to afford upper-level undergraduate and graduate students the opportunity to study the origins, development, and present state of human services in the United States. The course involves lectures as well as field visits in the Boston area. In addition to the normal classroom activities, independent study is provided.

SOC 1526 Comparative Human Services II 6 Q.H.

This course offers an intensive study of the British human services system. This course provides students the opportunity to immerse themselves in the social and cultural context of British human services and involves field trips in London designed to examine firsthand the planning, administration, and delivery of human services in Great Britain.

SOC 1535 Seminar in Social Welfare 4 Q.H.

Discussion of problems in social welfare observed in the term between "Problems" and "Practicum." A research paper, based on directed fieldwork in the intervening term, is the major course requirement.

SOC 1600 Senior Seminar 4 Q.H.

(Prereq. Senior standing in sociology/anthropology or permission of instructor)

The course provides the opportunity to analyze, from sociological perspectives, student experience in work and voluntary service and to develop and extend research interests related to that work or action experience.

SOC 1601 Seminar in Current Emphases in Sociology 4 Q.H.

(Prereq. Junior or senior standing in sociology/anthropology or permission of instructor)

This course offers review and discussion of selected sociological topics.

SOC 1602 Seminar in Current Emphases in Sociology: Writing and Talking in Sociology 4 Q.H.

(Prereq. Junior or senior standing in sociology/anthropology or permission of instructor)

The class considers prevailing modes of presentation in major journals and verbal presentation in teaching, consulting, etc. Class members are required to submit examples of their own writing for analysis.

SOC 1800, SOC 1801, SOC 1802, SOC 1803 Directed Study (each) 4 Q.H.

(Prereq. Junior or senior standing in sociology or permission of instructor)

The course offers independent work on a chosen topic under the direction of members of the department. Limited to qualified students with approval of department chairperson.

SOC 1819 Drinking in College (Honors Minicourse) 1 Q.H.

This minicourse looks at drinking in college through the eyes of social scientists, humanists, college administrators, and college students themselves. One of its goals is to help undergraduates arrive at a broader and more comprehensive understanding of the place of alcoholic beverages and controls on their use in campus society. The course surveys college drinking patterns in the United States from its beginnings to the present.

SOC 1821, SOC 1822, SOC 1823, SOC 1824 Junior-Senior Honors Program (each) 4 Q.H.

For details contact the Honors Office, 183 Holmes.

INT 1150 Introduction to Women's Studies: Image, Myth, and Reality 4 Q.H.

This is an introductory survey of the issues and methodology involved in the interdisciplinary study of women. Such a survey encompasses the historical, political, economic, and social processes that have created both the image and the reality of women in society. Guest lecturers provide an overview of the many different disciplinary approaches to the study of women. This course is required for women's studies minors and may be used either as a general elective or, depending upon the discipline of the coordinator, to satisfy specific concentration requirements. (II)

INT 1151, 1152 Women's Studies: Seminars in Research 4 Q.H.

These Interdisciplinary Women's Studies Seminars allow students to address problems in depth by researching a topic of particular interest. Careful development of a research plan is encouraged and opportunities are provided for sharing work in progress and for exchanging findings. These findings involve little in-class time, but much consultation with

appropriate faculty. The final product of seminar work and research is a major paper. Students in the Honors Program may substitute one quarter of honors registration for each seminar, but are still expected to attend the formal sessions of the seminar. These seminars are required for women's studies minors.

INT 1201 An Analysis of American Racism 4 Q.H.

This seminar in contemporary aspects of racism in America discusses the cycle by which racism in our institutions helps form our attitudes and the manner in which our attitudes, in turn, shape our institutions. Emphasis is on the practical, day-to-day aspects of racism, rather than the theoretical and historical.

INT 1215 Into the Ocean World 4 Q.H.

This course is a comprehensive interdisciplinary introduction to the oceans. The seas' complexity and the far-reaching consequences of our interactions with them demand an awareness of the many facets of marine study. The teaching team consists of specialists in the sciences, social sciences, humanities, and arts, each with an interest in marine issues and a commitment to bridging the gaps among disciplines. The course themes are as broad as the oceans, but, when appropriate, we will focus on Boston harbor, a first step into the ocean world for those of us in this area.

INT 1400 Professional Practices: Individual and Social Dimensions 4 Q.H.

The course explores the dimensions and dilemmas of freedom and responsibility confronting professional people practicing within limits set by socioeconomic conditions, by clients, and by other professionals. Case histories are examined to illustrate the dilemmas professionals face, the choices that are typically made, and the consequences these have on the freedom of the practitioner, and on personal and professional integrity.

INT 1401 Health Professions: Past, Present, and Future 4 Q.H.

This course focuses on social history of the modern health professions. The course explores long-range patterns in the organization and regulation of the health professions, beginning with the Middle Ages and emphasizing the Jacksonian period, industrialization, modern professional organizations, the growing role of the state, responses of the health professions, and the future of health care in the United States under various corporate/government schemes for reorganization and "accountability."

Speech Communication

Please note some courses in the College of Arts and Sciences are duplicated in different departments or colleges, or within a department. You may not receive credit for two such courses. If you have a question about whether one course does overlap with another, please consult the departments involved and the Dean's Office before taking the course.

Roman numerals at the end of course descriptions refer to *Core Curriculum* categories listed on pages 1-2.

SPC 1102 Effective Speaking 3 Q.H.

(Prereq. Industrial engineering students only; speech communication for specific purposes)

Designed to help provide the student with a basic understanding of the communication process and its function as a means of relating to the world, ourselves, and other people, the course examines factors in intra- and interpersonal communication, group communication, and public speaking through lectures, discussions, structured learning experiences, and written assignments.

SPC 1106 Speech Fundamentals 3 Q.H.

(Prereq. Recreation majors only; speech communication for specific purposes)

This course is designed to give the student an opportunity to develop a basic understanding of the communication process and its function as a means of relating to the world, ourselves, and other people. It examines factors in intra- and interpersonal communication, group communication, and public speaking through lectures, discussions, structured learning experiences, and written assignments.

SPC 1109 Effective Speaking Workshop 2 Q.H.

(Prereq. Civil engineering students only)

This course is designed to give the student an opportunity to acquire a basic understanding of the communication process and its function as a means of relating to the world, ourselves, and other people. It examines factors in intra- and interpersonal communication, group communication, and public speaking through lectures, discussions, structured learning experiences, and written assignments.

SPC 1110 Voice and Articulation 4 Q.H.

The course includes the study of voice technique: emphasis on pitch, projection, articulation, and vocal variety. A combination of theory and practical application.

SPC 1111 Oral Interpretation 4 Q.H.

The course focuses on application of basic vocal techniques to the dramatic reading of prose, poetry, and drama. Through literary analysis the author's meaning is understood and, by means of oral reading skills, communicated to an audience.

SPC 1115 Introduction to Communication Skills**4 Q.H.**

This course is designed to give the student an opportunity to develop a basic understanding of the communication process and its function as a means of relating to the world, ourselves, and other people. It examines factors in intra- and interpersonal communication, group communication, and public speaking through lectures, discussions, structured learning experiences, and written assignments.

SPC 1116 Business and Professional Speaking**4 Q.H.**

The course focuses on practice of oral presentations, group communication, conference and discussion techniques, interview methods, and occasion speaking. The course combines performance aspects with case study methods of communication on the professional level.

SPC 1210 Advanced Vocal Techniques**4 Q.H.**

(Prereq. SPC 1110 or permission of instructor)

Development and application of vocal techniques acquired in SPC 1110. Emphasis on vocal analysis, flexibility, and regional patterns of speech.

SPC 1211 Advanced Oral Interpretation**4 Q.H.**

(Prereq. SPC 1111)

Opportunity to develop further oral reading skills acquired in SPC 1111. In addition, the course includes work with accents and dialects, study of reader's theatre, and an investigation of classical and modern philosophies of the art.

SPC 1232 Female/Male Communication**4 Q.H.**

The course surveys the various dimensions of female-male relations as they are created, sustained, or disintegrated through communication transactions. Emphasis will be on the various images and stereotypes of male and female sexual identity as they affect and are affected by communication in the development of hostility, friendship, or intimacy. Temporary, permanent, and destructive female-male relations will be examined as they lead to alternate lifestyles.

SPC 1239 Argumentation and Debate**4 Q.H.**

An applied course designed to help develop skills in rational decision making through advocacy. Attention is given to logical reasoning, psychological methods, and motivational techniques.

SPC 1250 Introduction to Mass Communication**4 Q.H.**

This is an introductory course designed to explore the many media through which people express themselves: radio, television, film, print, music. Attention is paid to the role of the individual as a media consumer.

SPC 1300 Introduction to Communication Theory**4 Q.H.**

This course is designed to offer basic knowledge and understanding of the processes involved in the transference of meanings. From the problems involved in defining communication, through a discussion of the nature of communication, various models of communication are examined. The nature of theory and

requirements of adequate theory are discussed, leading to an examination of various theories of human communication, including psychological, sociological, information, and system theories.

SPC 1310 Rhetorical Theory I**4 Q.H.**

(Prereq. SPC 1115, SPC 1250)

This course examines various theories of rhetoric, starting with the early Greeks (Plato's "Phaedrus" and "Gorgias," Aristotle's "The Rhetoric"), progressing through the rhetoric of Rome (Cicero's "de Brute" and Quintilian's "de Institutione"), and moving into a brief synopsis of medieval rhetoricians (Peter Ramus, Thomas Wilson, Thomas de Quincey, Francis Bacon, George Campbell, Richard Whately). The focus will be the student's growing knowledge and appreciation of the history and principles of rhetoric, which is the foundation of oral discourse.

SPC 1315 Theories of Persuasion**4 Q.H.**

The course surveys theoretical and conceptual approaches and research pertaining to the effectiveness of communication that is intended deliberately to induce changes in attitudes, beliefs, values, and/or behavior.

SPC 1317 Theories of Audience Behavior**4 Q.H.**

Surveying theoretical models, concepts, and research, the course focuses on the role of the receiver as an active participant in the communication process. Topics include individual information processing; listening as a learned behavior; intra-audience effects; relations between media and audience characteristics; dissemination, rumors, and information; and the development of societal norms and mores.

SPC 1318 Negotiation Skills**4 Q.H.**

(Prereq. Middler standing or higher, or permission of instructor)

The skills involved in bringing matters to mutually acceptable settlements will be investigated and applied through lectures, discussions, and especially through performance in case studies and role-playing simulations. Classroom activities will include such personal, professional, and governmental processes as conflict resolution, problem solving, and advocacy. Particular emphasis will be placed on the collective bargaining process in the private and public sectors, including negotiation, mediation, and arbitration.

SPC 1330 Interpersonal Communication I**4 Q.H.**

This is a conceptual, theoretical course designed to help increase awareness of the communication process. The course provides an examination of the ways in which we relate to other individuals and factors that influence these processes.

SPC 1331 Interpersonal Communication II**4 Q.H.**

(Prereq. SPC 1330 or permission of instructor)

The course focuses on application of concepts developed in interpersonal Communication I. It is an experiential course, exploring ways of becoming more aware of one's self and one's relationships with others and offering an examination of various options for communicating and increasing knowledge of the group process. Enrollment limited.

SPC 1338 Group Discussion**4 Q.H.**

Working in task groups, students are expected to explore theory and research in the area of group dynamics and to apply their knowledge to the classroom experience as they work on developing skills in decision making, problem solving, membership, and leadership.

SPC 1410 Contemporary Public Address**4 Q.H.**

The course offers a critical study of the public address of leading contemporary speakers representative of important political and social movements. This course seeks to help the student gain an appreciation of the dimensions and varieties of contemporary public address, broadly defined as symbolic discourse. From an understanding of various theories and approaches to public address, rhetorical situations are examined; the use of agitative and control strategies to accomplish social change is critically evaluated.

SPC 1415 Persuasive Techniques**4 Q.H.**

(Prereq. SPC 1315 or permission of instructor)
The course offers a critical, in-depth analysis of instances of persuasion as they occur in social interaction, social movements, politics, and advertising; identification of practical strategies employed; and the factors that influence the effectiveness of those strategies when persuaders attempt to influence others.

SPC 1430 Organizational Communication**4 Q.H.**

(Prereq. SPC 1250)

Organizational Communication examines the nature of communication in the context of complex organizations. The student will explore both internal and external organizational communication. Analysis of organizational communication will include: (a) communication networks, (b) communication technologies, (c) interpersonal communication modes, and (d) organizational interdependencies and their effect on information transfer and diffusion. Will include a section on organizational communication assessment and communication program implementation.

SPC 1437 Consultation Skills**4 Q.H.**

(Prereq. SPC 1300, SPC 1115, SPC 1330, and SPC 1338)

The course gives students the opportunity to acquire the skills necessary for analyzing communication difficulties in industry, organizations, and groups. Includes theory discussion, practice, and feedback, using case study method.

SPC 1450 Television I**4 Q.H.**

(Prereq. SPC 1250 or permission of instructor)

The course introduces the student to the equipment of a broadcast studio, surveys broadcast production techniques, and provides opportunities in class for applied practice through the production of programming suitable for broadcast.

SPC 1452 Radio I**4 Q.H.**

(Prereq. Permission of instructor)

The course centers around the role of the producer/director in the creation, preproduction planning, and

execution of local and network radio programs. Emphasis is on live broadcasts and live assembly of partially prerecorded programs. A great deal of time will be spent on the written materials necessary for program planning. The class will spend some time in the studio working on model program production and, possibly, actual live music performance broadcasts.

SPC 1500 Special Topics in Speech Communication**4 Q.H.**

(Prereq. Permission of instructor)

The course provides an in-depth examination of a subject of particular significance to the field.

SPC 1554 Special Topics in Broadcasting**4 Q.H.**

(Prereq. SPC 1250 or permission of instructor)

This course introduces the student to the variety of roles played by broadcast professionals and to the interplay of professional functions integral to the broadcast industry. The focus is on a different aspect of the broadcast industry each term.

SPC 1600 Introduction to Communication Research**4 Q.H.**

(Prereq. SPC 1300 or permission of instructor)

The course provides an introduction to scientific method and epistemology as it applies to the investigation of communication phenomena. The course is structured to assist students in finding and critically evaluating literature dealing with factors that influence the effectiveness of communication and that may be pertinent to either academic projects or managerial decision making.

SPC 1610 Rhetorical Criticism**4 Q.H.**

(Prereq. SPC 1310)

This course focuses on the principles of rhetorical analysis: theories, methods, and the application of these to discourses. Various types of discourse will be studied throughout the quarter. Attention will be given to understanding various methods and problems in rhetorical analysis. Judgment criteria, as well as the role of rhetorical criticism in society, will be examined.

SPC 1890; SPC 1891 Directed Study**(each) 4 Q.H.****SPC 1892 Directed Study****4 Q.H.****SPC 1895 Internship in Speech Communication****4 Q.H.**

This course provides a student with the opportunity to gain academic credit for on-the-job training in an allied career field. Enrollment requires prior approval by a department committee, demonstration that the job allows opportunities to apply theoretical understanding to specific application in the work environment, and faculty advisement as well as on-the-job supervision.

SPC 1896 Internship in Speech Communication**4 Q.H.**

See SPC 1985.

Theatre and Dance

Roman numerals at the end of course descriptions refer to *Core Curriculum* categories listed on pages 1-2.

DRA 1100 Introduction to Theatre Arts 4 Q.H.

The course provides a brief view of the historical development of acting, directing, and production design. Emphasis is on appreciation of contemporary theatrical forms.

DRA 1106 Theatre History I 4 Q.H.

(This course is the first in a three-course sequence, although each course is self-contained and may be taken independently.) The history of world theatre and drama, including an examination of the characteristics of the drama and the nature of theatrical performance during each period, as well as the social and artistic contexts in which performance occurred. The periods examined this term are ancient Greece and Rome, medieval Europe, Elizabethan and Stuart England.

DRA 1107 Theatre History II 4 Q.H.

(This course is the second in a three-course sequence, although each course is self-contained and may be taken independently.) A continuation of Theatre History I. The periods examined this term are the Spanish Golden Age, the Italian renaissance, the theatre of baroque and eighteenth-century Europe, the rise of romanticism and realism in European theatre, and the theatre of Asia from its beginnings.

DRA 1108 Theatre History III 4 Q.H.

(This source is the third in a three-course sequence, although each course is self-contained and may be taken independently.) A continuation of Theatre History II. The course examines the rise of naturalism in the European theatre, the development of theatre in the United States, and the rise and development of modernism and post-modernism in America and European theatre.

DRA 1112 Drama Theory/Criticism 4 Q.H.

An examination of both the major historical statements of drama theory and contemporary drama criticism as evidenced in journalistic play reviews. Students are required to prepare reviews of local productions.

DRA 1116 The American Theatre 4 Q.H.

The course focuses on the American theatre from the Revolutionary War to the present.

DRA 1117 The Theatre of Williams, Miller, and Albee 4 Q.H.

The course offers an intensive study of the works of three major post-World War II American playwrights.

DRA 1118 Black Theatre in America 4 Q.H.

The course surveys the history of black theatre artists in America from the time of Ira Aldridge to the present day. Also examines the works of black playwrights from the Harlem Renaissance to the present, with an emphasis on the period beginning with Baraka's "Dutchman."

DRA 1120 The Restoration Theatre 4 Q.H.

The philosophical, social, historical, and critical influences upon the Restoration theatre and its dramatists.

DRA 1121 Contemporary Theatre 4 Q.H.

The course examines the various forces that have shaped the major trends in Western theatre over the past two decades. The course includes a study and examination of contemporary theatre concerns covering topics such as women's rights, politics, race, nudity, and homosexuality, as presented in theatres or performed by experimental and avant-garde groups.

DRA 1122 Twentieth-Century European Theatre 4 Q.H.

An examination of major twentieth-century European attempts to break away from the nineteenth-century realistic tradition. Representative works of expressionistic, symbolistic, epic, and absurd theatre artists will be examined.

DRA 1123 The Theatre of Ibsen, Strindberg, and Chekhov 4 Q.H.

Intensive study of the theatre of the three great masters of the naturalistic movement in Europe whose works stand as the foundation of modern drama.

DRA 1124 The Irish Theatre 4 Q.H.

The course focuses on theatre and drama in Ireland from their beginnings to the present, with the backgrounds of Irish folklore and history. Particular emphasis on developments in the twentieth century.

DRA 1125 The Theatre of the Absurd 4 Q.H.

The course focuses on the theatre of the absurd as an anti-literary reflection of and reaction to life; its effects upon Western drama. Major concern with selected works and ideas of Jarry, Artaud, Camus, Sartre, Beckett, Genet, Ionesco, Pinter, Kopit, Brown, and Arrabal.

DRA 1127 The Comic Theatre 4 Q.H.

The course focuses on the comic theatre from its beginnings in the ancient Greek theatre to its performances in contemporary theatre; an examination of the comic playwright, the comic actor, the comic director—the synthesizing of the arts of the theatre to produce thoughtful as well as titillating laughter. Included are study of scripts by such playwrights as Aristophanes, Molière, Shaw, Neil Simon; techniques of Charlie Chaplin, the Marx Brothers, stand-up comics. Directional devices will be examined through lecture, film, records, and attendance at live performances.

DRA 1130 Eastern European Theatre and Drama 4 Q.H.

A survey of the history of theatre and drama in Russia and Poland from the nineteenth century to the present. Emphasis will be placed upon the contributions of Polish romanticism, developments in the Soviet theatre

of the 1920s, and on the work of major Polish and Russian dramatists and theatre artists who have influenced Western theatre profoundly. (Course taught in English.)

DRA 1140 Playwriting I 4 Q.H.

The principles and practices of modern dramatic composition: characterization, plot, plot structure, dialogue, and other dramaturgical elements as seen in the one-act play. Included are the writing of brief scenes, the dramatic composition, and the one-act play.

DRA 1150 Introduction to Acting 4 Q.H.

Fundamental techniques of stage use. The actor and the stage environment. Improvisations for strengthening imagination and increasing freedom. Analysis of scripts for work on performed scenes.

DRA 1155 Speech for the Theatre 4 Q.H.

The course focuses on vocal technique and speech problems unique to actors performing in classical and contemporary theatre.

DRA 1160 Body Movement I 4 Q.H.

(Prereq. Theatre major or permission of instructor) Students begin with simple Esalen physical awareness exercises, explore the warm-up process, and then try to find which exercises serve them best. Simple theatre games (i.e., machines, transformations, activity improvisations) are introduced, and students have the opportunity to learn how to relax through concentration on a specific mental task.

DRA 1180 Concepts of Direction 4 Q.H.

(Prereq. DRA 1150 and DRA 1212) Theories of dramatic presentation through analysis of selected historical developments. Purposes and techniques of theatrical direction as they relate to script analysis, production style, pictorial composition, rhythmic evolution, and emphatic responses.

DRA 1200 Stagecraft 4 Q.H.

Principles that underlie the coordination and execution of technical production; examination of different kinds of scenery, tools, equipment, construction materials, and lighting techniques. Laboratory work: preparing technical elements of University productions.

DRA 1209 Theatrical Drafting 4 Q.H.

(Prereq. DRA 1200)

By working on supervised classroom projects, the student is exposed to the basic graphic language needed to translate a designer's ideas into technical drawings used for construction. These basic skills can be used for future course work in design, University productions, and professional work.

DRA 1210 Scenic Design for the Stage 4 Q.H.

(Prereq. DRA 1200, DRA 1212 or permission of instructor)

An introduction to the theory and practice of theatrical design and the role of the designer in the production process. Project work examines the use of the graphic tools—line, form, balance, colour, rhythm,

etc.—in the development of the design idea. Emphasis is based on understanding and utilizing spatial relationships; visually expressing conceptual themes; and understanding the various uses, problems, and practical considerations of proscenium, thrust, and arena staging. Historical analysis covers production styles from the Greco-Roman period through the nineteenth century.

DRA 1212 Introduction to Theatrical Design

4 Q.H.

An introduction to the visual effects of modern theatrical production and the creative processes by which these come into being, through a basic survey of the three major design disciplines, their supporting technology, and their working interrelationship. The questions of how artistic concepts are developed and related, how they are communicated to other artists and an audience, and how one develops the critical processes necessary to evaluate these concepts will be addressed by the design faculty as applicable to their respective areas of expertise.

DRA 1213 Scene Design II: Principles 4 Q.H.

(Prereq. DRA 1210)

The development and expression of conceptual statements from specific dramatic texts through a series of exercises involving script analysis and introductory work in rendering and model construction. Texts to be examined are selected from works of distinct historical and stylistic periods. The heritage of twentieth-century theatrical design will be studied through the work of artists such as Appia, Craig, Jones, Urban, and Oenslager. Emphasis is placed on the development of such stylistic treatments as realism, expressionism, symbolism, and constructivist and environmental design.

DRA 1214 Scene Design III: Techniques 4 Q.H.

(Prereq. DRA 1213)

Advanced work focusing on the practical application of the theories, materials, and techniques of contemporary design. Emphasis is placed on furthering the student's ability to research a project as well as executing perspective drawings, renderings, and painter's elevations. Assignments in critical analysis are based on various contemporary American and European production of dramatic and operatic works. The work of such influential designers as Aronson, Bay, Mielziner, and Svoboda will be discussed as will the contributions of such nontheatre artists as Chagall, Dali, and Picasso.

DRA 1225 Scene Painting 4 Q.H.

(Prereq. DRA 1200 or permission of instructor)

The history of scene painting and ornament from classical to contemporary times. Studio organization, color, color theory, equipment, tools, materials, and costs involved with the painting stage scenery. Projects and exercises in the use of different media, matching colors, painting of textures, light and shade, and the use of stencils and physical textures. Laboratory sessions include painting stage scenery for University productions.

DRA 1226 Lighting Design for the Stage 4 Q.H.

(Prereq. DRA 1200, DRA 1212 or permission)

Basic principles and practices of stage lighting, including the qualities and functions of light, lighting instruments and controls, basic electricity, color in light, and analysis of the script in terms of light requirements. Students are expected to develop light plots and schedules for various kinds of stage productions. Classwork includes laboratory work on lighting crews for University productions.

DRA 1246 Sound for the Theatre 4 Q.H.

Beginning with a basic introduction to both natural and electronically produced sound, the course will go on to discuss the component parts of sound systems, their theories and applications. Techniques of recording and editing will be discussed and demonstrated with particular reference to the creation of sound tracks and effects for theatrical productions. The concepts of sound reinforcement systems for musicals, concerts, and other current professional applications will be investigated.

DRA 1261 Costuming I 4 Q.H.

(Prereq. DRA 1212 or permission)

The course presents the beginning designer with the opportunity to investigate costume design theory and to foster perceptual development. Through lectures and projects, the student will have the opportunity to explore both the abstract and historical aspects of costume design as well as textual analysis and its conceptual implications. Prior art or design education is not necessary.

DRA 1265 Pattern Drafting and**Costume Construction****4 Q.H.**

The course will develop the skills and techniques necessary for the patterning, cutting, and construction of costumes for the stage. Flat pattern drafting, draping, and finishing techniques will be covered.

DRA 1280 Stage Makeup 4 Q.H.

The principles of, the reasons for, and the materials used in makeup for the theatre, television, and films. The practical application of types and styles of makeup—straight, old-age, character, and corrective—is also included.

DRA 1284 Theatre Management 4 Q.H.

Theatre management, including problems of financing, promoting, and programming for educational, community, profit, and nonprofit professional theatre.

DRA 1292 Children's Theatre 4 Q.H.

Theories and methods of creative techniques related to children's programs in schools, churches, and recreational facilities. Analysis of literature in preparation for production of children's plays.

DRA 1300 Acting II 4 Q.H.

(Prereq. DRA 1150)

Fundamental analysis of the script, including physicalizations and vocal scoring; character analysis; scenes performed for classroom analysis.

DRA 1301 Acting III 4 Q.H.

(Prereq. DRA 1300)

Further development of the actor's tools, script and character scoring, exercises for physical and psychological freedom. In-class scenes from works in progress are included.

DRA 1302 Acting IV 4 Q.H.

(Prereq. DRA 1301)

This course deals with the specific demands which verse plays place on actors. By working on scenes, textual analysis of individual speeches, and reading relevant criticism, students will become familiar with different aspects of text analysis and the problems inherent in acting verse. One paper will be required. The course will concentrate on the works of Molière and Shakespeare.

DRA 1350 Problems in Direction 4 Q.H.

(Prereq. DRA 1180)

Experimentation in theory related to the staging of classical and modern drama. Analysis of plays in actual production: casting, rehearsals, character interpretations. Each student is responsible for the production of a one-act play.

DRA 1370 Rehearsal and Performance 4 Q.H.

(Prereq. Permission of instructor)

Oriented to allow the students to participate in public performance through preparation and rehearsals in areas of acting, directing, design, and stagemanaging.

DRA 1400 Costuming II 4 Q.H.

(Prereq. DRA 1261 or permission of instructor)

Advanced study in textual interpretation and its application to costume design. Conceptual and stylistic development will be emphasized through assigned projects in the various genres of the performing arts.

DRA 1410 Technical Production 4 Q.H.

(Since this course will be the culmination of the design student's background and experiences, the student must already have completed all courses stipulated in his/her chosen design concentration before taking this particular course.)

An advanced course which allows the student the opportunity to further explore his or her capabilities through the practical application of acquired technical and aesthetic skills in an area related to the student's desired specialization. Focusing on one substantial production or project responsibility, this specialized study will be designed and executed in close supervision with the faculty member responsible for the area of concentration.

DRA 1420 Advanced Drafting and Construction

(Prereq. DRA 1209)

4 Q.H.*

A specialized course in technical production techniques. Drafting procedures necessary for the conversion of designer's drawings into detailed rear elevation and construction layouts will be covered, as well as the development of section, isometric, and

* Lab fee required.

oblique views. Through a series of practical and project exercises, the various factors governing the construction and rigging of two- and three-dimensional scenery, linear-motion, rotary-motion, and elevating systems will be analyzed. Emphasis is placed on theatrical problem solving with regard to safety, dependability, and economy.

DRA 1430 Lighting Design II 4 Q.H.
(Prereq. DRA 1226)

An intensive course in lighting design theory and practice. Students are expected to design numerous lighting plots, sections, instrument schedules, and design concepts, for various types of productions and spaces. Current professional techniques and practices will be investigated and discussed.

DRA 1500 Playwriting II 4 Q.H.
(Prereq. DRA 1140)
Continuation of DRA 1140.

DRA 1800, DRA 1801, DRA 1802, DRA 1803
Practicum in Production (each) 1 Q.H.

(Prereq. departmental permission)

Laboratory practice in technical production. To be repeated for credit (maximum four credits).

DRA 1810, DRA 1811, DRA 1812, DRA 1813
Junior-Senior Honors Program (each) 4 Q.H.

For prerequisites and other details, see the section on the Junior-Senior Honors Program on page 1.

DRA 1820, DRA 1821, DRA 1822, DRA 1823
Directed Study (each) 4 Q.H.

DRA 1840, DRA 1841, DRA 1842, DRA 1843,
DRA 1844, DRA 1845, DRA 1846, DRA 1847,
DRA 1848, DRA 1849 Special Topics in Theatre/
Dance Performance (each) 4 Q.H.

An in-depth examination of a subject of particular significance to the field.

DRA 1860, DRA 1861, DRA 1862, DRA 1863,
DRA 1864, DRA 1865, DRA 1866, DRA 1867
Special Topics in Theatrical Design

(each) 4 Q.H.

An in-depth examination of a subject of particular significance to the field.

DRA 1890, DRA 1891, DRA 1892, DRA 1893
Special Topics in Theatre History/Dramatic Criticism
(each) 4 Q.H.

An in-depth examination of a subject of particular significance to the field.

INT 1100 Introduction to Art, Drama, and Music 4 Q.H.

This interdisciplinary course offers an integrated approach to three related disciplines: art, drama, and music. Basic vocabulary and analytical techniques are established for each discipline, emphasizing such common elements as color, line, rhythm, texture, and form. Representative works from various periods are examined in the context of the cultures that produced them, and lectures focus on parallels and contrasts among the three disciplines' manifestations of specific trends, principles, and ideals. Lectures, readings, and listening assignments are supplemented by visits to art galleries and attendance of concerts and theatrical performances. (II)

INT 1110 American Musical Theatre 4 Q.H.

This course traces the development of the American musical from works such as "The Black Crook" to the present. The role of musical theatre, both as entertainment and as serious art form, is considered through an examination of script, score, dance, and design. Works by composers and lyricists such as Bernstein, Rodgers and Hammerstein, the Gershwins, Weill, Lerner and Loewe, and Cole Porter are studied.

Accounting

ACC 1111 Accounting Principles I 4 Q.H.

This first of a series of accounting courses assumes students do not possess knowledge of the subject. Both this course and ACC 1112 are designed to help provide an understanding of accounting issues and objectives for proper interpretation and analysis of financial data. Specific topics covered in this first course are: 1) the nature, function, and environment of accounting; 2) the basic accounting model; 3) financial and analytical ratios; 4) the accounting cycle; 5) accounting for merchandising entities; and 6) the control of cash and receivables.

ACC 1112 Accounting Principles II 4 Q.H.
(Prereq. ACC 1111)

The second of a series of accounting courses. Students are introduced to financial and managerial accounting decisions through class discussions, short exercises, and demonstration problems. Specific

topics covered include: 1) control of inventory; 2) acquisition, depreciation, and disposal of plant and equipment; 3) paid-in capital related to sole proprietorships, partnerships, and corporations; 4) short- and long-term debt financing; 5) the analysis and interpretation of financial reporting; and 6) the statement of changes in financial position.

ACC 1210 Introduction to Accounting for the Non-Business Major 4 Q.H.

(Not open to College of Business Administration students)

Specifically for non-business majors, this course is designed to help provide a fundamental knowledge of accounting to students who do not expect to become accountants but would like the opportunity to learn to understand, interpret, and make use of accounting data. The course surveys the foundations of accounting and the role it plays in the management

of the profit and nonprofit sectors of the American economy.

ACC 1330 Cost Accounting for Management

(Prereq. ACC 1112) **4 Q.H.**

This course offers an examination of cost accounting from a managerial viewpoint. The impact of quantitative and behavioral aspects on budgets and cost control is stressed. This course is designed specifically for management majors.

ACC 1331 Intermediate Accounting I **4 Q.H.**

(Prereq. ACC 1112 or equiv.)

The principal foundation course for accountants begins with a comprehensive review of basic accounting principles, operations, and financial statements. Development of accounting theory is stressed in the analysis of alternative treatments and procedures. Specific areas receiving intensive treatment are cash, accounts receivable, inventories, and current liabilities.

ACC 1332 Intermediate Accounting II **4 Q.H.**

(Prereq. ACC 1331)

This course is a continuation of the study of accounting principles, concepts, and procedures. Specific topics emphasized are long-term assets, depreciation, stockholders equity, and EPS.

ACC 1339 Cost Accounting I **4 Q.H.**

(Prereq. ACC 1112)

This course examines cost determination and use. Special consideration is given to manufacturing concerns. Specific coverage includes cost behavior, relevant costs, performance evaluation, budgets, and standard costs.

ACC 1340 Cost Accounting II **4 Q.H.**

(Prereq. ACC 1339)

This course is a continuation of ACC 1339 (Cost Accounting I) and gives special attention to the use of cost data in decision making, budget planning, and the control process.

ACC 1343 Intermediate Accounting III **4 Q.H.**

(Prereq. ACC 1332)

This course completes the study of basic accounting concepts and covers special areas of concern to modern accounting practice. Leases, pensions, accounting changes, income tax accounting, changes in financial position, price-level and current-value accounting are studied.

ACC 1348 Accounting Theory and Practice

(Prereq. ACC 1343) **4 Q.H.**

Objectives are to examine: 1) the theory and practice of corporate financial reporting and some of the controversial areas in accounting; 2) the pronouncements and research studies of the authoritative institutions of the profession relating to the practice of accounting; 3) the textual and periodical literature on accounting theory.

ACC 1349 Accounting Planning and Control

(Prereq. ACC 1340) **4 Q.H.**

This course provides an examination of the role of

management planning and control systems and problems inherent in their design and use, and defines the process of identifying factors in the design of these systems.

ACC 1501 Auditing

4 Q.H.

(Prereq. ACC 1343)

Designed for the student who plans to enter the public accounting profession, this course examines audit concepts, standards, and procedures, including the auditor's legal and ethical responsibilities. Emphasis is on concepts rather than procedures. Specific areas covered are auditing standards, auditor's reports, internal control, statistical sampling, EDP, and legal liability.

ACC 1505 Internal Auditing

4 Q.H.

(Prereq. Middler standing)

This course is designed to aid students in understanding how the internal auditor undertakes a review and appraisal of operations. Study will focus on the internal audit environment, preparation of long-range programs, the performance of preliminary surveys, flowcharting, the development of audit programs, sampling, audit techniques, and reporting. The course is case-study oriented.

ACC 1511 Federal Income Taxes I

4 Q.H.

(Prereq. ACC 1343 or permission of instructor)

This course stresses basic understanding of the federal income tax structure relating to individuals rather than to corporations. Students are required to complete several research cases directed at solving various tax problems. Case studies introduce the student to the current Internal Revenue Code, income tax regulations, and cumulative bulletins. Tax court cases and various private company publications are discussed.

ACC 1512 Federal Income Taxes II

4 Q.H.

(Prereq. ACC 1511)

This course is a continuation of ACC 1511 (Federal Income Taxes I), focusing on taxpayers other than individuals and the treatment of those property transfers subject to federal, gift, estate, and trust taxes. Tax research is an important element of this course. A major emphasis is given to tax planning considerations, especially to gift and death tax consequences.

ACC 1521 Advanced Accounting Problems

(Prereq. ACC 1343)

4 Q.H.

This course is an in-depth analysis of various accounting topics for the student planning a career as a professional accountant. Topics covered are government and not-for-profit accounting; partnerships; installment sales; consignments; segment and interim reporting; foreign currency accounting; troubled-debt restructurings; and liquidations, estates, and trusts.

ACC 1522 Advanced Accounting for Business Combinations

4 Q.H.

(Prereq. ACC 1343 or permission of instructor)

This course is a comprehensive analysis of the accounting theory and practice associated with corporate acquisitions and combinations. Topics include

methods of consolidation-elimination of profits on intercompany transactions, purchase versus pooling of interests, and accounting for good will. The course is intended for the serious student preparing for a career as a professional accountant.

ACC 1526 Management Accounting 4 Q.H.
(Prereq. ACC 1349)

This course examines the role of the management accountant. Topics include relation between financial and managerial accounting, design and use of accounting and control systems, measurement techniques and uses, the role of behavior in accounting, performance evaluation, and other topics of current interest.

ACC 1530 Accounting Systems 4 Q.H.
(Prereq. Middler standing)

This course examines the process of designing both financial and managerial accounting systems. The approach is conceptual, and the course considers the use of computer technology in designing new systems where computers are appropriate. The course assumes an understanding of accounting processes in both financial and managerial areas.

ACC 1531 Contemporary Accounting Problems 4 Q.H.
(Prereq. ACC 1332)

A seminar designed to survey some of the important problem areas currently facing the accounting profession. These areas will incorporate asset valuation, price-level adjusted statements, environmental considerations, income measurement, and governmental intervention.

ACC 1535 Computers in Accounting and Auditing 4 Q.H.
(Prereq. ACC 1501 or ACC 1505)

This course examines the use of computers in ac-

counting and auditing. Topics include systems design and applications in accounting, internal control of computer-based systems, computer audit and control guidelines, and EDP audit tools and techniques.

ACC 1591 Independent Study 1 Q.H.

For the student who has received approval of a proposal to undertake independent study in lieu of any course required in the various concentrations. Each teaching area considers proposals presented by students to its Independent Studies Committee for evaluation and approval. Every proposal requires a detailed outline of the objectives and plan of study and must be accompanied by a supporting statement from the supervising faculty member under whose direction the study will take place. A copy of the final report prepared by the student will be presented to the appropriate Independent Studies Committee. Further information about the Independent Studies Program can be obtained from area coordinators.

ACC 1592 Independent Study 2 Q.H.
Same as ACC 1591

ACC 1593 Independent Study 3 Q.H.
Same as ACC 1591

ACC 1594, ACC 1595, ACC 1596, ACC 1597, Independent Study 4 Q.H.
Same as ACC 1591

ACC 1891 Honors Thesis in Progress 0 Q.H.

ACC 1892 Honors Thesis 8 Q.H.

ACC 1893 Honors Thesis in Progress 0 Q.H.

ACC 1894 Honors Thesis 12 Q.H.

Entrepreneurship

ENT 1330 Management of Smaller Enterprises 4 Q.H.

This is a general management course that focuses upon the strategies and operating problems of smaller, already established business enterprises. The course is designed for individuals who are considering entrepreneurial careers or careers in management, finance, or marketing within the smaller-company environment. Discussion will explore the characteristics and urgencies of problems that smaller companies are likely to encounter at different stages in their evolving life cycle, from the postnatal period to the more mature stage.

ENT 1344 Opportunity Analysis and Venture Capital 4 Q.H.

This course is concerned with the essential tasks performed prior to establishing a new venture. These include finding a suitable business opportunity or

developing an idea for a product or service; analyzing the feasibility of the opportunity or idea; developing a business plan; structuring the venture team; seeking sources of seed capital; and forming a venture action plan for beginning operations.

ENT 1352 New Venture Creation: A Career Choice 4 Q.H.
(Prereq. Senior standing)

This course is designed to assist students interested in small business in answering a number of important questions through a systematic analysis of their own potentials for entrepreneurial careers: What is involved in starting my own business? What is my own entrepreneurial orientation and commitment? What managerial and behavioral skills do I need for achievement? How can I plan for my personal and entrepreneurial goals? Case discussions, self-assessment, goal-setting exercises, guest speakers, and a student-selected project are used.

ENT 1358 Small Business Institute Project

8 Q.H.

(Prereq. Junior standing; one entrepreneurship course or permission of instructor)

The Small Business Institute Field Project was brought into existence with the cooperation of the Small Business Administration (SBA) and some of its client companies in Greater Boston. A student team is expected to interact with a smaller company, helping management to analyze opportunities and problems facing the business, and to develop practical recommendations for the company's decision makers. Students are expected to allocate approximately one day per week to the project, including on-site work with the company owner-managers with whom they have been paired and to participate in related research, report preparation, and presentation of results. This real-world experience is blended with occasional class meetings and frequent team meetings with a faculty member to discuss the field work and to explore alternatives. Interim progress reports and a final report are presented to the client company, SBA, and the class.

ENT 1591 Independent Study

1 Q.H.

For the student who has received approval of a proposal to undertake independent study in lieu of any course required in the various concentrations. Each teaching area considers proposals presented by students to its Independent Studies Committee for evaluation and approval. Every proposal requires a detailed outline of the objectives and plan of study and must be accompanied by a supporting statement from the supervising faculty member under whose direction the study will take place. A copy of the final report prepared by the student will be presented to

the appropriate Independent Studies Committee. Further information about the Independent Studies Program can be obtained from area coordinators.

ENT 1592 Independent Study

2 Q.H.

Same as ENT 1591

ENT 1593 Independent Study

3 Q.H.

Same as ENT 1591

ENT 1594, ENT 1595, ENT 1596, ENT 1597 Independent Study

4 Q.H.

Same as ENT 1591

ENT 1598 Independent Study

8 Q.H.

Same as ENT 1591

ENT 1812 Honors: Risks and Rewards of Entrepreneurship

4 Q.H.

(Prereq. Honors participants or permission of instructor)

Anxiety and exhilaration run neck and neck through the small business experience. The degree to which these extremes of emotion occur has not been thoroughly studied. So far, research has concentrated on the backgrounds and attributes of entrepreneurs rather than on the psychological and physiological "fallout" from running their companies. The purpose of this honors seminar will be to identify situations and issues that can cause entrepreneurs stress, on the one hand, and satisfaction, on the other.

ENT 1891 Honors Thesis in Progress

0 Q.H.

ENT 1892 Honors Thesis

8 Q.H.

ENT 1893 Honors Thesis in Progress

0 Q.H.

ENT 1894 Honors Thesis

12 Q.H.

Finance and Insurance

FIN 1201 Personal Finance

4 Q.H.

(Not open to College of Business Administration students)

The course focuses on management of the total personal estate: budgeting, savings, insurance, investments, borrowing, taxes, Social Security, pensions, annuities, securities markets, mutual funds, and their integration.

FIN 1333 Financial Institutions and Markets

4 Q.H.

(Prereq. Middler standing)

The course aims to provide students an understanding of the financial environment faced by a firm as well as the financial institutions serving the economy. The course discusses the forces that determine the changes in money and capital markets and explores the implications of changing financial environment for the management of funds in a firm and/or financial institution.

FIN 1335 Managerial Finance

4 Q.H.

(Prereq. FIN 1438)

The objective of the course is to provide students the opportunity to gain knowledge of the advanced tools and concepts used in the management of funds. Topics include inventory and credit policies, risk, capital budgeting, financial structure, cost of capital, dividend policy, and valuation of a firm. Overall financial strategy and timing of its implementation are also examined. Specialized topics—mergers and acquisitions, financial failure, and financial policy for multinational firms—may be considered in the course.

FIN 1346 Investment Management

4 Q.H.

(Prereq. FIN 1438 and MSC 1201)

This course offers a broad overview of the concepts, practices, and procedures of investment management. Areas covered include basic security types, security market operations, security analysis (both fundamental and technical) and an introduction to portfolio management.

FIN 1438 Introduction to Finance 4 Q.H.

(Prereq. ACC 1112 and middler standing)

The objective of this course is to acquaint students with basic processes, principles, tools, and concepts of finance. Topics include financial analysis, financial forecasting, profit planning, budgeting, working capital management, and capital budgeting. The course also covers the basics of financial markets, institutions, and sources of supply of different types of funds available to a firm.

FIN 1503 Taxes and Financial Decisions 4 Q.H.

(Prereq. ECN 1105 and middler standing)

In this course, the case method is used to discuss a number of financial decisions that are greatly influenced by tax considerations, the most important of which are concerned with capital structure, dividend policy, acquisition terms, investment policies and liquidations. The federal income tax receives primary consideration, but state and foreign taxes are also discussed.

FIN 1520 Speculative Markets 4 Q.H.

(Prereq. FIN 1346)

The purpose of this overview course is to familiarize the student with all aspects of speculative markets, including options, futures, and options on futures.

FIN 1522 Seminar in Option Markets 4 Q.H.

(Prereq. FIN 1520 and FIN 1333)

While puts and calls have been traded for many years, a market for listed options only appeared in 1973. Trading options on exchanges made such activity much easier and opened many more opportunities for both speculation and the protection of security positions. The purpose of this seminar is to explain the basic mechanics of this market, the characteristics of puts and calls, the techniques that may be applied, and current developments in the field. Students will be required to do individual research related to current methodology and concepts. Some knowledge of money and capital markets, as well as corporate finance, is necessary for those taking the course.

FIN 1525 Seminar in Financial Futures 4 Q.H.

(Prereq. FIN 1520)

This is a seminar in commodity futures markets centered in the area of financial futures, with special emphasis on interest rate futures. The course covers the methods of trading, margins, hedging, spreading futures contracts in treasury bills, commercial paper, treasury bonds, treasury notes, GNMA's, etc. Students prepare a seminar report on some aspect of the futures market.

FIN 1526 Securities Markets 4 Q.H.

(Prereq. FIN 1438)

This course aims to analyze the operation of the securities market. Striking a balance between descriptions and analysis, the course provides students the opportunity to examine in detail the operation and function of investment bankers, broker-dealers, and securities exchanges. There is a thorough study of the mechanics of cash and margin accounts, trading options, and regulations affecting securities markets.

FIN 1528 Seminar in Finance Theory 4 Q.H.

(Prereq. FIN 1335)

The course involves a discussion of the different theories related to the financial policies of business organizations and an analysis of the contributions of various theorists in finance. It covers topics such as debt capacity, capital budgeting under uncertainty, cost of capital, dividend policy, and the capital asset pricing model. The policy implications, limitations, and underlying assumptions of various theories are incorporated into the course.

FIN 1530 Working Capital Management 4 Q.H.

This course examines strategies and analytical approaches to managing current assets and current liabilities. It explores corporate cash management under changing money market conditions and discusses the use of interest rate futures and working capital management in a multinational context.

FIN 1531 Long-term Financial Management 4 Q.H.

(Prereq. FIN 1438 and FIN 1385)

This course focuses on several phases of long-term finance. Particular attention is devoted to complex cases dealing with capital budgeting, new financing, and mechanisms (both public and private) used to raise long-term funds.

FIN 1540 Management of Financial Institutions

(Prereq. FIN 1438 and FIN 1333)

This course offers a broad study of the decision-making problems faced by financial institutions such as commercial banks, savings and investment institutions, and finance companies when viewed as competitive, profit-seeking business entities. Topics include the nature and scope of the capital markets confronting institutions, specialized problems regarding the sources and uses of funds of financial institutions, the nature of competition, the regulation of financial institutions, and strategic policy planning of financial institutions.

FIN 1543 Modern Portfolio Management 4 Q.H.

(Prereq. FIN 1335 and FIN 1346)

This course seeks to analyze the methods of selection, revision, and performance measurement of asset portfolios. The student will be exposed to the current and most modern methods of asset portfolio-building in business today. The concept of the efficient frontier of assets in the risk-return space will be presented and evaluated. Included in the course is a simulated equity fund management project. Each student must initially select a number of equity securities to satisfy the stated objectives of his/her fund and at the end of the course will be required to prepare and present an annual report evaluating the portfolio's construction and performance.

FIN 1544 Bank Management

(Prereq. FIN 1438 and FIN 1333)

This course deals with the financial management of commercial banks and thrift institutions. The problems of liquidity and investment management, loan portfolio and capital management, and pricing problems associated with various sources and uses of

funds are analyzed in the context of changing economic and regulatory environment for these institutions. The course is conducted through lectures, discussions, and cases.

FIN 1550 Real Estate Finance: Analysis and Investment 4 Q.H.
(Prereq. FIN 1438)

This course provides students with a comprehensive overview of real estate finance. Factors affecting real estate investment are emphasized. Specific topics covered include: valuation (appraisal) market analysis development, ownership types, short-term financing, mortgage markets, the impact of inflation on real estate investment, and finance and investment strategies. The course is designed for students interested in a general overview of real estate finance, as well as those intending to pursue further studies in real estate. Instruction is primarily through readings, lectures, and case discussions.

FIN 1552 Entrepreneurial Decision Making in Real Estate 4 Q.H.
(Prereq. FIN 1550)

This course provides an overview of property acquisition, development, and management from an entrepreneurial perspective. Topics include planning, financing, cost control, and management of construction, marketing, and joint ventures. All major land uses are considered. Instruction is primarily through lectures and case discussions. Some class sessions may be devoted to guest speakers from the real estate community.

FIN 1562 A Risk Management Approach to Employee Benefit Programs 4 Q.H.
(Prereq. FIN 1438)

The concept of risk management is employed to develop a framework for a systematic treatment of employee benefit programs. The risks associated with the employee are defined, methods used by an employer to handle these risks are reviewed, and the concept of cost minimization of employee benefit programs is introduced. Private insurance, Blue Cross/Blue Shield, and government programs are viewed as alternative financing mechanisms of employee benefit programs, and the benefits and costs of these institutional arrangements are discussed.

FIN 1566 A Risk Management Approach to Property and Casualty Insurance 4 Q.H.
(Prereq. FIN 1438)

The concepts of risk, uncertainty, risk management, and insurance are introduced. A comprehensive analysis of property and casualty insurance markets and products is presented from a buyer's perspective. Principal emphasis is placed on defining and analyzing alternative methods of treating risk in a business enterprise. The course discusses different risk management strategies and analyzes practical situations.

FIN 1580 Personal Financial Management 4 Q.H.
(Prereq. FIN 1438)

The course places emphasis on the development of

personal financial management expertise based on an integrated plan for personal choices in which alternative courses of action are judged by their contribution to the attainment of the decision maker's particular set of economic objectives. The overall personal economic plan is the consistent focus of the course and unites such diverse topics as inflation and investment selection, insurance, short- and long-run hedges against the purchasing power risk, purchasing assets, etc. The course is decision oriented and attempts to expose students to alternative courses of action and lead them toward a rational solution by developing techniques of estimating the success probabilities of alternative methods.

FIN 1591 Independent Study 1 Q.H.

For the student who has received approval of a proposal to undertake independent study in lieu of any course required in the various concentrations. Each teaching area considers proposals presented by students to its Independent Studies Committee for evaluation and approval. Every proposal requires a detailed outline of the objectives and plan of study and must be accompanied by a supporting statement from the supervising faculty member under whose direction the study will take place. A copy of the final report prepared by the student will be presented to the appropriate Independent Studies Committee. Further information about the Independent Studies Program can be obtained from area coordinators.

FIN 1592 Independent Study 2 Q.H.
Same as FIN 1591

FIN 1593 Independent Study 3 Q.H.
Same as FIN 1591

FIN 1594, FIN 1595, FIN 1596, FIN 1597 Independent Study 4 Q.H.
Same as FIN 1591

FIN 1760 International Financial Management 4 Q.H.

(Prereq. FIN 1438)
This course introduces students to the international financial environment. Subjects include balance of payments, exchange rates, Eurocurrencies, foreign capital markets, etc. The financial policies and practices of companies involved in multinational operations are considered. Specific topics include capital budgeting; capitalization policies, the use of Eurocurrency and Eurobond markets, and foreign exchange risk management by the international firm.

FIN 1770 Small Business Finance 4 Q.H.
(Prereq. FIN 1438)

This course utilizes the basic processes, principles, tools, and concepts of finance within the parameters of a small business to develop a complete financial plan that projects the future circular flow of funds by analyzing and then integrating the impact of both investment decisions (use of funds) and financial decisions (source of funds).

FIN 1803 Honors: Seminar in Finance Theory
(Prereq. Participant in Honors Program only) **4 Q.H.**
See Course Description for FIN 1528.

FIN 1804 The Application of the PC to Financial Management **4 Q.H.**
(Prereq. Participant in Honors Program)
This honors seminar in finance will offer an opportunity to explore the application of basic analytical programs to problems in corporate financial management by means of the personal computer. Students will be required to learn the major functions of Lotus 123 and to apply them to a variety of financial management problems, including basic financial analysis, financial forecasting of working capital needs, financial modeling, capital budgeting, and capital structure decisions.

FIN 1806 Investment Arbitrage **4 Q.H.**
(Prereq. Honors participant or permission of instructor)
The purpose of this course is to provide the student with an opportunity to develop the prerequisite skills necessary for conducting successful investment arbitrage. Incorporating the recent insights into arbitrage pricing theory, students will conduct an extensive computerized analysis of the arbitrage opportunities in the financial equity, debt, option, and futures markets. Examination of this emerging and popular investment approach will be augmented with the appearances of guest arbitrage practitioners.

FIN 1891 Honors Thesis in Progress **0 Q.H.**

FIN 1892 Honors Thesis **8 Q.H.**

FIN 1893 Honors Thesis in Progress **0 Q.H.**

FIN 1894 Honors Thesis **12 Q.H.**

Human Resources Management

HRM 1332 People and Productivity: Human Resources Management **4 Q.H.**
(Prereq. HRM 1432)

This course is designed to help students develop understanding of contemporary issues in human resource management. Problems posed by changing work patterns, labor force characteristics, union activities, and government policies are examined. Organizational experiments such as worker participation, job enlargement, and group incentives are discussed and evaluated from a managerial perspective.

HRM 1340 Personnel Administration **4 Q.H.**
(Prereq. HRM 1431)

This course explores basic traditional personnel functions, with an emphasis on the role of the personnel specialist. Functions include recruitment, selection, placement, training, and development of employees, as well as reward systems such as money and promotions. The recent challenge of new regulatory systems, such as affirmative action and occupational safety and health, on employment planning will be covered.

HRM 1345 Contemporary Labor Issues **4 Q.H.**
(Prereq. HRM 1431)

The course provides a study of current issues dealing with labor in its broadest sense. Labor unions and manpower institutions as well as the emerging development and training problems motivated by unemployment, poverty, and changing work patterns are discussed. Recent legislation dealing with the employment relationship is reviewed.

HRM 1348 Reward Systems: Wage, Salary, and Benefits Administration **4 Q.H.**
(Prereq. HRM 1431)

This course examines one of the major functions of personnel administration—compensation management—and its part in the overall personnel programs

of the organization. The analysis of reward systems as supportive mechanisms of management and the formulation of compensation policy and implementation of compensation systems are developed through simulation exercises and group projects, as well as lectures and cases.

HRM 1349 Selection and Assessment of Employees **4 Q.H.**
(Prereq. HRM 1432)

The course examines three influences of employee selection and testing: first, the legal aspect of selection, where the greatest uncertainty is found; second, the influence of industrial psychology on selection and decision-making techniques; and third, the area of personnel practices itself, that is, the methods employers find effective in coping with legal requirements. Basic issues and procedures such as EEO, decision strategies, and the utility and evaluation of selection and appraisal systems will be covered.

HRM 1431 Complex Organizations **4 Q.H.**
(Prereq. Middler standing)

The course examines the structure and dynamics of the complex organization. Focus is on the design of the organization and its basic subsystems (reward, control, selection, development). Students have the opportunity to explore how organizational structures help shape human behavior. Emphasis is on understanding the interrelations among organizational structures, tasks, and individual characteristics within the context of a changing environment.

HRM 1432 Organization Behavior **4 Q.H.**
(Prereq. Middler standing)

This course explores the effects of individual, interpersonal, group, and leadership factors on human behavior. Managerial applications of behavioral and social science concepts are also explored, including job design, job satisfaction, performance appraisal,

supervision, career dynamics, and organizational change. Emphasis is placed on helping the student develop skills in dealing with the human side of enterprise.

HRM 1501 Organizational Structure and Process
(Prereq. HRM 1432 and HRM 1431) **4 Q.H.**

An examination of various schools of management thought, including the classical, scientific management, human relations, and contingency approaches to management. This course also explores organizational concepts developed from research on organizations including: Interdependence, Uncertainty, Coordination and Differentiation-Integration. Readings and research findings will be applied to case examples of complex organizations.

HRM 1504 Strategies of Organizational Changes
(Prereq. HRM 1431) **4 Q.H.**

This course focuses on three basic areas: (1) organizations as stable systems that naturally resist both planned and unplanned change; (2) organizations as dynamic systems that continuously respond to both internal and external pressures for change; and (3) strategies and techniques for designing, implementing, and managing change. The role of the change agent will be discussed in this context.

HRM 1512 Motivation and Control
(Prereq. HRM 1431) **4 Q.H.**

This course provides an extensive analysis of various theories of motivation, including Herzberg's two-factor theory, expectancy theory, learning theory, need theory (McClelland), and competence motivation. This course also considers the behavioral implications of various organizational systems of measuring and controlling operations.

HRM 1515 Strategic Planning and Reward Systems
(Prereq. HRM 1432) **4 Q.H.**

A study of the process of strategic planning with an emphasis on problems in planning system implementation. The importance of developing reward systems that recognize management performance in strategic planning will be explored. Corporate planning and reward systems in both the United States and Japan will be studied. Cases, readings, and a term paper will be used.

HRM 1519 Leadership
(Prereq. HRM 1431) **4 Q.H.**

This course offers a study of the leadership function in a variety of organizational settings. Using a contingency approach, this course explores a range of possible leadership behaviors, relating the appropriateness of a particular style to a number of situational factors. Readings provide an opportunity to explore several contingency theories of leadership; cases allow for the application of these models; and videotaped role playing and self-assessment techniques permit the student to evaluate his/her own leadership style.

HRM 1520 The Changing Workplace: An On-Site View of Industrialization
(Prereq. HRM 1431) **4 Q.H.**

America, and New England in particular, is noted as the place where the genius of industrial innovators and managers brought the industrial revolution to its first real flowering. This course deals in depth with the interactions of technical, economic, social, and managerial factors as they evolved in forming industrial New England. Emphasis is on the nineteenth century although forces will be traced from colonial New England to the present. Focus is on the participants in this dynamic free enterprise process—the managers and workers—and the settings in which they worked and lived. The seminar format includes on-site studies of factory settings, mill reconstructions, museums, and the communities in which developments took place. The seminar also includes films, lectures, and individual tutorials. Each student is required to complete a research project.

HRM 1539 Managing Careers
(Prereq. HRM 1431) **4 Q.H.**

This course examines the tools for both self-assessment (investigating one's skills, abilities, needs, values, and interests) and career exploration (determining the nature of and requirements for entering and succeeding in various career fields). The goal of the course is to help students develop an individualized plan of action that summarizes a wide variety of data indicating an individual's present status and career goals, and the means by which to bridge the gap.

HRM 1542 Women in Management
(Prereq. Middled standing) **4 Q.H.**

This course explores contemporary worklife problems for both men and women. Topics include: sex role stereotyping—its origins and impact in organizational settings; sexual harassment and affirmative action; dual career couples and their implications for organizational design; sex differences in leadership and power.

HRM 1581 Managerial Skills Seminar
(Prereq. HRM 1431) **4 Q.H.**

This course offers a study of the nature of managerial work focusing on three key managerial roles—interpersonal, informational, and decisional. Behavioral determinants of administrative effectiveness are examined with an emphasis on the practical implications of and personal orientations to those key managerial roles.

HRM 1583 Seminar in Collective Bargaining
(Prereq. HRM 1431) **4 Q.H.**

The course focuses on the organization, negotiation, and administration of collective-bargaining relations between management and unions in different industries, services, and levels of government. Simulations of actual bargaining and an arbitration exercise are also a part of the course.

HRM 1591 Independent Study 1 Q.H.

For the student who has received approval of a proposal to undertake independent study in lieu of any course required in the various concentrations. Each teaching area considers proposals presented by students to its Independent Studies Committee for evaluation and approval. Every proposal requires a detailed outline of the objectives and plan of study and must be accompanied by a supporting statement from the supervising faculty member under whose direction the study will take place. A copy of the final report prepared by the student will be presented to the appropriate Independent Studies Committee. Further information about the Independent Studies Program can be obtained from area coordinators.

HRM 1592 Independent Study 2 Q.H.
Same as HRM 1591**HRM 1593 Independent Study 3 Q.H.**
Same as HRM 1591**HRM 1594, HRM 1595, HRM 1596, HRM 1597 Independent Study 4 Q.H.**
Same as HRM 1591**HRM 1760 International Labor Relations Systems (Prereq. HRM 1431) 4 Q.H.**

This course analyzes the labor relations systems of selected countries in comparison with that of the United States. The political, cultural, and economic forces that shaped these systems are also studied. Special attention will be given to such international institutions as multinational companies and the EEC. There will be cases, readings, and projects assigned.

HRM 1762 International Human Resource Management 4 Q.H.
(Prereq. Junior standing)

This course covers basic issues in human resources management relevant to managing in international and cross-cultural environments. Topics include

selection and training of personnel for work in multi-cultural environments, managing the international employee in the United States and abroad, cross-cultural communication, international environments, special issues of concern to small business, and change in multinational companies.

HRM 1822 Microcomputers in Human Resource Management 4 Q.H.

(Prereq. Honors participant or permission of instructor) With the help of microcomputers as a teaching tool, the course will cover the following topics: (1) the theoretical and conceptual aspects underlying the implementation of information systems and quantitative models in HRM; (2) the hands-on, nuts-and-bolts aspects of how to get set up, generate reports from, and maintain a computerized personnel database; and (3) the application of management-science models for human resource planning and forecasting.

HRM 1823 Human Resources Information Systems (Prereq. HRM 1332) 4 Q.H.

This course explores the conversion of computer processing and data management systems methods to personnel applications such as manpower planning, government report generation, report generation, skills inventory and career development, payroll, and project planning. The basic techniques of using HRIS to provide timely, economical information for managerial decision making are covered, including systems analysis (e.g. understanding user objectives and environment, data collection, data organization, system design, testing, system implementation, and evaluation).

HRM 1891 Honors Thesis in Progress 0 Q.H.**HRM 1892 Honors Thesis 8 Q.H.****HRM 1893 Honors Thesis in Progress 0 Q.H.****HRM 1894 Honors Thesis 12 Q.H.**

International Business Administration

INB 1338 Introduction to International Business (Prereq. Middler standing) 4 Q.H.

This focuses on the cultural, economic, and political aspects of domestic and foreign environments and their effect on the international operations of business firms. Topics covered include 1) the principles, patterns, and potential of international trade and investments; 2) the development of management strategies for international businesses; and 3) the organization and management of the firm's international operations.

INB 1352 Seminar in International Business (Prereq. INT 1338) 4 Q.H.

This course applies the concepts and skills acquired in other international and domestic courses to the

solution of managerial problems. It focuses on the task of solving significant managerial problems in international and foreign cultural contexts. Students' reports form a major part of this course and are expected to concentrate either on a functional business area related to international operations or on analyses of market opportunities and methods of entry in a foreign environment. Other instructional vehicles include case analyses and discussions of current issues.

INB 1501 Comparative International Management (Prereq. Middler standing) 4 Q.H.

The objective of this course is to help to develop the student's conceptual and analytical abilities to: 1) identify and analyze management systems in various

national settings and 2) understand the impact of economic, social, political, and cultural variables on management systems.

INB 1652 London Business Seminar 4 Q.H.

The special focus of this course is the development of multinational business in Europe and its effect on the economies of the EEC and the United States of America. Additionally the course will compare and contrast the marketing approaches of companies within two seemingly similar trading environments: the United Kingdom and the United States. Seminar topics include: impact of international integration on European business; effectiveness of multinational joint ventures; multinational marketing management; UK/USA comparative marketing strategies; growth and power of the retailer; branding, own label, generics—

the battle for supremacy. Case studies in this seminar are based on developing an international marketing program.

INB 1731 Cultural Aspects of International Business 4 Q.H.

Using a managerial perspective, this course will cover issues that arise when a firm moves from its home country to a host country that may have a different national culture. Although it will usually take the perspective of the U.S.-based firm that operates abroad, it will spend some time on what happens to other national firms operating in the United States and in third country environments. The way in which "corporate culture" evolves in the context of national culture and the impact on managers will be a central issue.

Management

MGT 1115 Introduction to Business 4 Q.H.

This course focuses on the business organization as a system of interrelated functions and operations, the interactions between the organization and its environment, and the role of management in business organizations.

MGT 1345 Legal Aspects of Business 4 Q.H.

This course examines the legal aspects of business transactions and business relationships involving contracts; sales, bulk transfers, and secured transactions under the Uniform Commercial Code; principal and agency; and suretyship and guaranty.

MGT 1446 Managing Social Issues 4 Q.H.

(Prereq. HRM 1431 and junior standing)

This course offers an analysis of environmental influences—economic, legal, technical, social, cultural, and ethical—affecting the corporation. The focus is on managerial decision making and relieving the tensions generated by these external factors.

MGT 1450 Business Policy 4 Q.H.

(Prereq. HRM 1431)

This course focuses on corporate strategy and its elements, including an analysis of the company, its resources, opportunities, environment, and decision makers. Emphasis is on decision making and implementation of strategy while operating a company in the context of a business simulation.

MGT 1571 The Law of Business Organizations and Commercial Paper 4 Q.H.

(Prereq. MGT 1345)

This course is an introduction to the legal aspects of the typical forms of business organizations, partnerships, corporations, and the rights, responsibilities, and liabilities involved. The course also covers the law governing commercial paper under the Uniform Commercial Code, and the Bankruptcy Reform Act of 1978.

MGT 1572 Law of Wills, Trusts, and Estates

4 Q.H.

Topics include requirements of valid will, claims of and against estates; the administration of estates,

both formal and informal; essential elements for the creation of a trust; kinds of trusts, including inter vivos and testamentary trusts; the rights, responsibilities, and liabilities of trustees; and the rights of beneficiaries.

MGT 1573 Bulk Sales and Bankruptcy 4 Q.H.

In examining bulk transfers, a detailed study is made of the Uniform Commercial Code, Article 6; the need of the transferor to give to the transferee a sworn list of all his creditors; the giving of notice to the listed creditors; the contents of the notice, what creditors are protected; and the legal consequences of failure to comply with the Code. The bankruptcy aspects of the course deal with both voluntary and involuntary bankruptcies; the appointment and duties of the trustee; provable and dischargeable debts; priority of debts; discharge and acts that bar a discharge.

MGT 1574 Law in Society 4 Q.H.

(Prereq. Middler standing)

The course is designed to provide students the opportunity to acquire a broad view of their legal rights, obligations, and responsibilities in their relations with others and with the state. Includes study of torts such as assault and battery, trespass, negligence, slander, libel, and deceit; and crimes such as homicide, assault and battery, robbery, arson, larceny, and burglary.

MGT 1591 Independent Study 1 Q.H.

For a student who has received approval of a proposal to undertake independent study in lieu of any course required in the various concentrations. Each teaching area considers proposals presented by students to its Independent Studies Committee for evaluation and approval. Every proposal requires a detailed outline of the objectives and plan of study and must be accompanied by a supporting statement from the supervising faculty member under whose direction the study will take place. A copy of the final report prepared by the student will be presented to the appropriate Independent Studies Committee. Further information about the Independent Studies Program can be obtained from area coordinators.

MGT 1592 Independent Study Same as MGT 1591	2 Q.H.
MGT 1593 Independent Study Same as MGT 1591	3 Q.H.
MGT 1594, MGT 1595, MGT 1596, MGT 1597 Independent Study Same as MGT 1591	4 Q.H.
MGT 1720 Labor Law (Prereq. Middler standing) The purpose of this course is to help acquaint the student with the many constitutional and legal problems involved in labor organizing, industrial relations, labor negotiations, labor contract enforcement, and dispute resolution. Cases are studied for the legal principles underlying the common law, state and federal laws, and the constitutional questions of power and authority. The Sherman Act, Clayton Act, Norris-LaGuardia Act, and Labor Management Relations Act are considered.	4 Q.H.
MGT 1808 Honors: Seminar on the Management of Innovation (Prereq. Honors participant or permission of instructor) The management of technological innovation is of critical importance to American companies as they face increasing worldwide competition. Knowledge in the area is advancing rapidly and incorporates work from several disciplines, including strategy, marketing, organizational behavior, and finance. This course will be run as a research seminar. Students will be responsible for identifying relevant topics in the management of innovation and completing a research study. Students can work either individually or in small groups on the research topic they define. Students will be required to submit a research proposal, a progress report at mid-quarter, and a final paper and presentation.	4 Q.H.
MGT 1819 Honors: Seminar in Research (Prereq. MSC 1201) This seminar focuses on the definition of research in the context of the business environment, research methodologies, and the student's attempt at research	4 Q.H.

through a term project. Methodological issues include the formulation of concepts, hypotheses, and theories; the design of research projects; data collection; data analysis; and report writing. The term project involves investigation of a subject of interest to the student. The projects are intended to serve as prototypes of honors thesis.

MGT 1820 Independent Study (Honors) **4 Q.H.**
Directed study toward fulfillment of Honors Program requirements. Open only to students who have been accepted into the Honors Program. Procedures for arranging the Honors Independent Study are the same as those for MGT 1594.

MGT 1821 Honors: The Computer Software Industry—Strategy and Management **4 Q.H.**
This course is designed to introduce participants to the evolving structure and strategy of the computer software industry. Within the broad industry, the fastest-growing segments are custom systems and packaged software. The course will begin by explaining how environmental factors have led to the importance of packaged software, and go on to provide cases and readings that help the student to understand and analyze management policies and problems in this industry.

MGT 1826 Managing the Business Government Interface **4 Q.H.**
(Prereq. Honors participants or permission of instructor)
Managing the business-government relationship is an important business activity. This course will explore the "tools" available to the manager to influence the firm's position vis-à-vis the government. These tools will be applied to current issues, including product liability, government procurement, bail-outs, location incentives, industrial policy, and others.

MGT 1891 Honors Thesis in Progress	0 Q.H.
MGT 1892 Honors Thesis	8 Q.H.
MGT 1893 Honors Thesis in Progress	0 Q.H.
MGT 1894 Honors Thesis	12 Q.H.

Marketing

MKT 1331 Marketing Management (Prereq. MKT 1435) This course is designed to provide training in marketing decision making. Case studies simulating actual business settings are used to help students develop analytical abilities and sharpen their communications skills. Topics covered range from techniques used to analyze a market to the development of a total marketing strategy (product policy, pricing policy, promotion policy, and distribution policy).	4 Q.H.
MKT 1341 Marketing Research (Prereq. MKT 1331) This course focuses on the survey research process and the analysis of data using "canned" computer	4 Q.H.

programming routines. Among the topics covered are: 1) problem definition, 2) research design, 3) sampling techniques, 4) questionnaire development, 5) data collection methods, and 6) data analysis. Students are expected to work on group projects with participating firms. No previous computer experience required.

MKT 1351 Competitive Strategy **4 Q.H.**
(Prereq. MKT 1331)
A capstone marketing course, required of all students with a marketing concentration. The focus is on the formulation of marketing strategy at a policy level and its implementation in a dynamic environment.

MKT 1435 Introduction to Marketing 4 Q.H.
(Prereq. Middler standing)

This course consists of lectures, readings and small-group discussions on the role of marketing in contemporary society, in the business enterprises, and in the nonprofit organization. Consideration is given to the planning, operation, and evaluation of marketing and promotional efforts necessary to the effective marketing of consumer and industrial products and services in both profit and nonprofit organizations.

MKT 1501 Introduction to Retailing 4 Q.H.
(Prereq. Middler standing)

This course explores the range of retail firms that comprise the retailing industry, from large mass merchandisers to small specialty outlets. The functions, practices, and organizations of various store types are examined. Current issues, career opportunities, the environment of retailing and retailing's role in the economy are among topics considered.

MKT 1503 Retail Merchandising and Control 4 Q.H.
(Prereq. MKT 1435 or permission of instructor)

This course examines the concepts and techniques of store operations and merchandise management. Topics such as calculating and planning markups and markdowns, pricing, inventory control, stock turn, open-to-buy, profitability analysis, and expense control are considered.

MKT 1507 Retail Strategies and Problems 4 Q.H.
(Prereq. MKT 1435; junior or senior standing or permission of instructor)

This course considers strategic and policy decisions of major retail enterprises engaged in food, apparel, and general merchandise distribution. The evolution of retail institutions is analyzed along with the characteristics of and prospects for new store types.

MKT 1512 Marketing for Nonprofit Organizations 4 Q.H.
(Prereq. Middler standing)

This course examines the unique characteristics of marketing in public and nonprofit enterprises. It aims to expand the scope of marketing management concepts beyond the traditional setting of business. Particular attention is paid to the basic decision-making differences between public and private firms. The course involves case analysis, assigned readings, and a group project.

MKT 1513 Direct Marketing 4 Q.H.
(Prereq. MKT 1331)

Direct marketers use direct response advertising to generate immediate, measurable responses—either direct sales or requests for more information—from their prospects and customers. This course will focus on starting and managing mail-order catalog businesses; conducting consumer and business-to-business direct mail campaigns; preparing telemarketing programs; and creating newspaper, magazine, radio, and television direct-response advertising.

MKT 1515 Marketing in the Service Sector 4 Q.H.
(Prereq. MKT 1435)

The course provides a basic treatment of methods and techniques for marketing in the service sector, which includes sports, recreation, public service, banking, insurance, and hotels. In addition to the principles covered, a number of descriptive studies will be analyzed covering the application of such marketing principles in key service areas.

MKT 1523 Advertising Management 4 Q.H.
(Prereq. MKT 1331)

This course focuses on the management of the advertising function in relation to a firm's overall marketing objectives. The course approaches the subject from the perspective of the user of advertising (e.g., product manager, marketing manager). Case studies and text material are used to help the student develop decision-making skills.

MKT 1531 Sales Management 4 Q.H.
(Prereq. MKT 1331)

This course is designed to help the student develop decision-making skills necessary for both building and maintaining an effective sales organization. Cases and readings are used to examine the strategic and operating problems of the sales manager. Major topic areas include the selling function, sales management at the field level, and the sales executive.

MKT 1536 Brand Management 4 Q.H.
(Prereq. MKT 1331)

This course focuses upon the management and development of brand strategies as well as the management of the product mix in the multi-product firm. Topics include evaluating and planning new consumer product introductions, identifying and screening new product opportunities, evaluating market performance, segmenting the product/market, and managing the product line.

MKT 1540 Marketing Channels 4 Q.H.
(Prereq. MKT 1435 or permission of instructor and junior or senior standing)

This course studies marketing structures and institutions: their evolution, functions, interrelations, and the management of their role in the marketing process.

MKT 1542 Industrial Marketing 4 Q.H.
(Prereq. MKT 1331)

This course examines the marketing of products where business firms are the potential customers. Upperclass elective, open to juniors and seniors.

MKT 1545 New Product Development 4 Q.H.
(Prereq. MGT 1450)

For most firms, coping with the problems of environmental change through modification of the product line is both vital and difficult. This seminar is concerned primarily with the examination and analysis of the problems firms face in directing and managing their new product development activities.

MKT 1553 Foundations of Consumer Behavior

(Prereq. MKT 1331)

4 Q.H.

This course is concerned with helping students develop an understanding of consumer attitudes and behavior processes as the basis of the design of marketing problems. Consideration is given to economic and behavioral models of consumer behavior and to underlying behavioral theories and concepts.

MKT 1560 Marketing Information and Decision**4 Q.H.**

(Prereq. MKT 1331 or junior or senior standing or permission of instructor)

This course considers state-of-the-art marketing information systems and computer-based business aids. Their applicability to various marketing management situations is explored. "Hands-on" experience is provided through the use of actual business case studies.

MKT 1573 Workshop in Negotiations**4 Q.H.**

(Prereq. Junior or senior standing)

The objective of this course is to aid students in improving their understanding of the negotiations process and their ability to plan and conduct negotiations effectively. Class activities involve readings, lectures, and discussions, as well as numerous case discussions and live and videotaped role-play negotiation exercises.

MKT 1580 Quantitative Methods in Marketing

(Prereq. MSC 1201)

4 Q.H.

This course focuses on statistical methods and techniques commonly used in the analysis and interpretation of survey and experimental data. "Canned" computer programs will be used extensively to illustrate the applicability of the methods discussed. No previous computer experience required.

MKT 1591 Independent Study**1 Q.H.**

For the student who has received approval of a proposal to undertake independent study in lieu of any course required in the various concentrations. Each teaching area considers proposals presented by students to its Independent Studies Committee for evaluation and approval. Every proposal requires a detailed outline of the objectives and plan of study and must be accompanied by a supporting statement from the supervising faculty member under whose direction the study will take place. A copy of

the final report prepared by the student will be presented to the appropriate Independent Studies Committee. Further information about the Independent Studies Program can be obtained from area coordinators.

MKT 1592 Independent Study**2 Q.H.**

Same as MKT 1591

MKT 1593 Independent Study**3 Q.H.**

Same as MKT 1591

MKT 1594, MKT 1595, MKT 1596, MKT 1597 Independent Study**4 Q.H.**

Same as HRM 1591

MKT 1760 International Marketing**4 Q.H.**

(Prereq. MKT 1435)

This course is designed to help familiarize the student with those aspects of marketing that are unique to international business within the framework of traditional functional areas of marketing. The focus is on the environment and the modifications of marketing concepts and practices necessitated by environmental differences. Topics include cultural dynamics in international markets, political and legal environmental constraints, educational and economic constraints, international marketing research, international marketing institutions, and marketing practices abroad.

MKT 1805 Honors: Marketing and Public Policy**4 Q.H.**

This course consists of an examination of major public policy issues of concern to marketers. These issues include advertising substantiation, unfair and deceptive advertising, product defects, advertising to children, advertising of alcoholic beverages and tobacco products, and pricing practices. The course will draw heavily on the past and present activities of the Federal Trade Commission and will use staff reports, judges' reports, commission decisions, as well as the evidence provided by companies in response to FTC actions.

MKT 1891 Honors Thesis in Progress**0 Q.H.****MKT 1892 Honors Thesis****8 Q.H.****MKT 1893 Honors Thesis in Progress****0 Q.H.****MKT 1894 Honors Thesis****12 Q.H.**

Management Science

MSC 1200 Business Statistics I**4 Q.H.**

(Prereq. MTH 1114)

Statistics is a methodology concerned with data collection, analysis, and interpretation. Information generated by statistical methods is used for analyzing decisions in the face of uncertainty. This course introduces fundamental concepts and methodology of probability, probability distribution, Bayesian revisions, estimation, and hypothesis testing.

MSC 1201 Business Statistics II**4 Q.H.**

(Prereq. MSC 1200)

Continuation of MSC 1200. Topics include chi-square tests, simple and multiple regression-correlation analysis, and elementary concepts of decision theory.

MSC 1226 Introduction to Data Processing**4 Q.H.**

This course is designed to introduce the business student to those aspects of modern data processing techniques vital to his/her future job performance.

During the first part of the course the student will have the opportunity to learn to program in the BASIC language on the University's VAX 11/780 time-sharing system. The second part of the course deals with the history of data processing, computer hardware and software, and an overview of the creation and operation of management information systems.

MSC 1433 Quantitative Models in Business 4 Q.H.
(Prereq. MSC 1201)

A model is a simplified representation or abstraction of reality. The focus of this course is on the construction of appropriate mathematical models for managerial decision-making problems. Criteria for selecting various stochastic and deterministic models are discussed. Specific topics included are decision trees, decision analysis, linear programming, and simulation.

MSC 1441 Operations Management 4 Q.H.
(Prereq. MSC 1201)

Operations Management is concerned with the productive system of an enterprise whereby inputs of technology, materials, personnel, and information are transformed into useful goods and/or services. The principal objective of this course is to introduce the student to the types of problems and issues encountered by the operations manager. Various models and techniques will be discussed, but the emphasis is on problem formulation and managerial implications.

MSC 1501 Purchasing and Materials Management 4 Q.H.
(Prereq. MSC 1441)

Concerned with decisions related to the flow of materials from supplier to point of use. Special emphasis on problems related to purchasing, including negotiation, value analysis, supplier selection, etc. While greater emphasis is placed on materials management in manufacturing organizations, nonprofit and nonmanufacturing concerns are also included. Instructor applies latest research in field gleaned from projects sponsored by the National Association of Purchasing Management and the American Production and Inventory Control Society.

MSC 1511 Operations Planning and Control 4 Q.H.
(Prereq. MSC 1441)

This course focuses on the planning and control necessary for an enterprise to respond to customer demand. Specific topics include the design of the planning and control system, inventory planning and control, forecasting for operations planning, and operations scheduling.

MSC 1523 Production Management 4 Q.H.
(Prereq. MSC 1441)

A continuation of MSC 1441.

MSC 1553 Decision Analysis 4 Q.H.
(Prereq. MSC 1201)

This course focuses on the analysis of decision making with particular emphasis on realistic problems under uncertainty. The course aims to help

improve the student's ability to make better decisions through a careful consideration of alternative courses of action and their consequences, relevant objectives, and the element of risk. Topics include the basic components of decision problems, the concepts of risk and utility, decision trees, and value of information and multicriteria decision making.

MSC 1562 End User Computing 4 Q.H.

An overview of the large and rapidly growing collection of software geared towards the needs of the nontechnical end user. Topical coverage will include discussion of various software packages (such as spread sheets, data bases, and graphics) for use on both mainframe and personal computers.

MSC 1564 High-Technology Operations Management 4 Q.H.
(Prereq. MSC 1441)

High-technology industries are usually characterized by greater degrees of innovation and faster rates of obsolescence of products and capital equipment than other industries. In addition, they are supported by manufacturing operations that are at the early phases of the learning curve. This course deals with the importance of these factors, and the application of the tools and techniques of operations management to firms operating in a high-technology environment. It is recommended for students interested in careers in high-technology manufacturing industries and also for those who analyze the manufacturing potential of high-technology firms, such as analysts for venture capitalists, and consultants.

MSC 1571 Management Information Systems 4 Q.H.
(Prereq. MSC 1427 and junior standing)

This course will examine the design, implementation and operation of management information systems (MIS), and those characteristics of MIS that have the greatest impact on the effectiveness and efficiency of business organizations. Emphasis will be placed on computer-based systems that support managerial decision making, planning, and control. The course will include a computer project using a data base management system.

MSC 1591 Independent Study 1 Q.H.

For the student who has received approval of a proposal to undertake independent study in lieu of any course required in the various concentrations. Each teaching area considers proposals presented by students to its Independent Studies Committee for evaluation and approval. Every proposal requires a detailed outline of the objectives and plan of study and must be accompanied by a supporting statement from the supervising faculty member under whose direction the study will take place. A copy of the final report prepared by the student will be presented to the appropriate Independent Studies Committee. Further information about the Independent Studies Program can be obtained from area coordinators.

MSC 1592 Independent Study 2 Q.H.
Same as MSC 1591

MSC 1593 Independent Study 3 Q.H.
Same as MSC 1591

MSC 1594, MSC 1595, MSC 1596, MSC 1597 Independent Study 4 Q.H.
Same as HRM 1591

MSC 1823 Honors: Managerial Applications of Artificial Intelligence 4 Q.H.
Artificial intelligence is currently being brought into the commercial limelight after twenty-five years of basic research and application to problems in the fields of medicine, engineering, and the basic sciences. This course focuses upon existing and expected managerial applications in a variety of industries. It will include readings from relevant literature, guest lecturer presentations, and site visits. In addition, student teams will attempt to develop prototypical expert systems for specific managerial decision making problems in actual field settings.

MSC 1824 Honors: Micro-Computer Models for Operations Management 4 Q.H.
The course will focus on the application of and experimentation with operations management models developed for use on microcomputers. The topics include: forecasting, inventory management, materials requirements planning, project scheduling, resource allocation in a capacity constrained operating system, and, if time permits, one or two additional OM models. The course will include an introduction to each model followed by practical application using a case study. Each case is structured so as to require use of the microcomputer to evaluate alternative solutions. It is possible that, instead of case studies, student teams apply two or more of the models to specific, existing problems in industry.

MSC 1891 Honors Thesis in Progress 0 Q.H.

MSC 1892 Honors Thesis 8 Q.H.

MSC 1893 Honors Thesis in Progress 0 Q.H.

MSC 1894 Honors Thesis 12 Q.H.

Transportation

TRN 1333 Principles of Transportation 4 Q.H.
(Prereq. ECN 1105 and middler standing)
Topics include the political, social, and economic functions of transportation; development and structure of the domestic transportation system; the nature of government regulation and promotion of the several modes.

TRN 1335 Current Issues in Transportation 4 Q.H.
(Prereq. TRN 1333)
This course provides an overview of the regulatory process and its impact on the domestic transportation system; critical examination of topical policy issues that confront carriers, shippers, and the agencies of regulation.

TRN 1344 Physical Distribution Management 4 Q.H.
(Prereq. Junior standing)
This course is concerned with movement, distribution, and control of raw material and finished goods flows. Examination of the importance of inventory control, scheduling, warehousing, and transportation in the design and operation of distribution systems.

TRN 1353 Seminar in Transportation and Distribution 4 Q.H.
(Prereq. TRN 1353 and TRN 1337)
This is a discussion- and research-oriented course that focuses on a limited number of advanced transportation and distribution topics. Included is interaction with business and government through individual research on the topic chosen for presentation by the student.
Also see course MGT 1594 for Independent Study.

TRN 1514 Carrier Management 4 Q.H.
(Prereq. TRN 1333)
This course examines the transportation system from the carrier's viewpoint; managerial response to a heavily regulated and rapidly expanding environment; focus on carrier decision making involving routes, scheduling, financing, and pricing of services.

TRN 1528 Urban Transportation 4 Q.H.
This course focuses on the movement of people and freight in and around metropolitan areas. Study includes a management approach to the planning, implementation, and operation of mass transit systems. Interrelations of transit with other urban programs, the auto mode, and the government/public sector will be discussed.

TRN 1545 Air Transportation 4 Q.H.
(Prereq. TRN 1333)
The course offers a managerial perspective on economics and regulation of aviation. The course probes aspects of commercial aviation, passenger and cargo, transportation, and key areas of general aviation.

TRN 1591 Independent Study 1 Q.H.
For the student who has received approval of a proposal to undertake independent study in lieu of any course required in the various concentrations. Each teaching area considers proposals presented by students to its Independent Studies Committee for evaluation and approval. Every proposal requires a detailed outline of the objectives and plan of study and must be accompanied by a supporting statement from the supervising faculty member under

whose direction the study will take place. A copy of the final report prepared by the student will be presented to the appropriate Independent Studies Committee. Further information about the Independent Studies Program can be obtained from area coordinators.

TRN 1592 Independent Study 2 Q.H.
Same as TRN 1591

TRN 1593 Independent Study 3 Q.H.
Same as TRN 1591

TRN 1594, TRN 1595, TRN 1596, TRN 1597 Independent Study 4 Q.H.
Same as HRM 1591

TRN 1721 Transportation Labor 4 Q.H.
(Prereq. TRN 1333)

This course focuses on the significance of the labor component in the transportation industries. Attention is devoted to trends in employee compensation, productivity, and bargaining patterns. Also examined are

the role of government in this area and the impact of transportation labor on shippers, carriers, and consumers.

TRN 1760 International Transportation and Distribution Management 4 Q.H.

This course examines the present and future status of United States and world ocean and air transportation in international trade and development. The economic, regulatory, financial, and operating characteristics of these forms of carriage are examined with primary emphasis given to their impact on international trade patterns. Other topics include government promotion, subsidy, and technological innovation.

TRN 1891 Honors Thesis in Progress 0 Q.H.

TRN 1892 Honors Thesis 8 Q.H.

TRN 1893 Honors Thesis in Progress 0 Q.H.

TRN 1894 Honors Thesis 12 Q.H.

Counseling Psychology, Rehabilitation, and Special Education

CRS 1030 Introduction to Emotional Disturbances in Children 4 Q.H.

Review of emotional processes that interfere with learning behavior and a study of approaches used to deal with behavioral disorders. Emphasis is on classroom management techniques, use of consultation, and parent-teacher interaction.

CRS 1200 Introduction to Special Education 4 Q.H.

A survey of the characteristics and the social, emotional, and educational adjustment of special-needs individuals. The effects of society's attitudes, the individual's own attitude toward the handicap, and the effect of the handicap itself are evaluated. Current legislation will be reviewed.

CRS 1300 Introduction to Learning Disabilities 4 Q.H.

This course surveys behavioral characteristics of children who present specific deficits in perceptual, integrative, or expressive processes that impair learning efficiency. Students are expected to work to develop competencies in diagnosing curriculum materials and teaching methods.

CRS 1301 Diagnostics in Special Education 4 Q.H.
(Prereq. CRS 1200 and CRS 1300)

Students should work to develop competence in 1) observing, recording, and analyzing children's behavior and learning environments, including continuous measurement and informal assessment of general, specific, and behavioral learning needs; and 2) techniques of formal assessment of general, specific, and behavioral learning needs.

CRS 1302 Methods and Materials of Teaching in Special Education 4 Q.H.

(Prereq. CRS 1200, CRS 1300, CRS 1301, or senior status)

Course instruction will focus on the following areas: 1) development and implementation of individualized educational plans, including task analysis, adaptation and selection of materials, strategies in applied classroom management techniques; and 2) adaptation and selection of materials and strategies in language arts, mathematics, and perceptual-motor skills.

CRS 1304 Socio-Psycho Dynamics of Family Life 4 Q.H.

An introduction to and survey of the internal and external dynamics of family life. The significance of such dynamics to the mental health of the special-needs child will be examined. The approaches to working with parents and the school-home relationships, as well as the effects of disability on the family, are explored.

CRS 1305 Psychology of the Mentally Retarded 4 Q.H.

Analysis of the etiology, nature, and needs of the retarded individual, emphasizing cognitive and psychosocial development. Implications of these characteristics for life-span management are explored in conjunction with parental and community attitudes and involvement.

CRS 1306 Introduction to Rehabilitation 4 Q.H.
Overview of and orientation to the field of rehabilitation, including its historical development, psychological implications, and sociological dimensions. Special

attention is paid to rehabilitation of specific disability groups such as the physically disabled, emotionally disturbed, mentally retarded, alcoholic, drug dependent, and public offender.

CRS 1310 Intervention Strategies for the Human Services 4 Q.H.

(Prereq. ED 1302)

Introduction to the wide range of skills used in working with clients in the various helping professions, e.g., counseling (individual and group), advocacy, rehabilitation, community organizing, income maintenance, etc. Taught primarily through role playing, simulations, and interviews with practicing professionals; also readings, but no fieldwork requirement. Intended as preparation for more specialized courses. Required for Human Services majors but open to other students with appropriate backgrounds.

CRS 1313 Introduction to Group Counseling 4 Q.H.

(Prereq. CRS 1314)

This course provides a foundational exposure to the theory and skills of group counseling as it is practiced in various human service settings. Topics cover developmental stages of counseling groups: approaches to leadership style, and strategies for starting, maintaining, and terminating the counseling group. The course includes an opportunity for students to practice rudimentary skills of leadership of counseling groups and to become involved in focused group process activities.

CRS 1311 Case Management: Diagnosis and Treatment 4 Q.H.

(Prereq. SOC 1100 or PSY 1111)

The course offers an introduction to the basic theory and skills of managing client's treatment programs in a variety of institutional settings. Students receive training to identify the components of a psychosocial assessment, examine commonly used techniques of planned service delivery and resource coordination, and review the diverse entitlements that are available

to clients of diverse needs and backgrounds. Much of the instruction will occur in a seminar-like format.

CRS 1312 Introduction to Family Systems Counseling 4 Q.H.

(Prereq. CRS 1314)

This course provides an introduction to the concepts and skills of family systems therapy, a counseling orientation in which the family is the chosen social unit of assessment and intervention for the client's problem. The course covers major approaches within communications and structural frameworks, emphasizing implications for normal family development and interventions in dysfunctional systems, and addresses theory and strategies for working with marital and parenting subsystems. Course offers students a beginning opportunity to experience the manner in which their family affects their functioning in various social systems with which they have professional contact.

CRS 1314 Introduction to Counseling 4 Q.H.

This course presents an exposure to major theoretical approaches to counseling. Students will receive training and practice in listening skills and are expected to develop facilitative responses. Classroom work will combine didactic presentations and experiential activities to assist students in understanding and implementing a variety of counseling approaches.

CRS 1800 Directed Study 4 Q.H.

(Prereq. Permission of instructor)

This experience is provided for the student whose unique academic needs or interests cannot be adequately satisfied in any of the scheduled courses of the Department. Preparation: Approval of the supervising faculty member and of the Dean's Office of the Boston-Bouvé College of Human Development Professions. Approval forms must be submitted to the Dean's Office during the quarter prior to registration for the Directed Study.

Department of Education

ED 1003 Reading/Study Skills I 4 Q.H.

Designed to provide instruction to students who demonstrate a need to be more efficient in comprehending and studying college textbooks and collateral reading assignments. This course will concentrate on techniques involved in understanding informative materials and introduce students to the evaluation of persuasive prose. In addition, suggestions will be presented on such topics as how to listen to and take summary notes on course lectures and how to set study goals and priorities consistent with course objectives.

ED 1004 Reading/Study Skills II 4 Q.H.

This course is an extension of Reading/Study Skills I and will expand upon the analysis and interpretation

of persuasive texts. Other topics emphasized include reading imaginative prose for meaning and pleasure, preparing for and taking examinations, and learning to adjust reading speed and method to various materials encountered in concurrent courses.

ED 1005 Practicum in Reading and Study Skills 4 Q.H.

This course is designed to give students in the academic program, Project Ujima, comprehensive tools to help them to master the "how to" of reading textbooks, notetaking, outlining, introductory research skills, time management, studying skills, and other techniques necessary for success in college. The skill areas covered can be applied to other courses that students may be taking.

ED 1100 Education and Social Science 4 Q.H.

An interdisciplinary course that draws on anthropology, psychology, and sociology, and exposes students to some of the concepts, methods, and terminology of these fields. Main themes are the evolution of human nature, the influence of previous experience and learning on the behavior of individuals and groups, difficulties in achieving a full degree of humanity in a technological society, and the potentially powerful roles that "professional socializers" (teachers, clinicians, group leaders, etc.) can play in the lives of students and clients.

ED 1101 Education for the Future: A Creative and Humanistic Approach 4 Q.H.

Students in this course will be given the opportunity to gain a perspective on the array of conflicting learning experiences that bombard their lives; to identify the factors that influence what people learn and from whom; to evaluate the potential effects of these learnings. As a consequence, the students will be encouraged to develop frames of reference through which to examine their own roles in the education process. A creative and humanistic approach to teaching is the basis for all the work in this course.

ED 1102 Human Development and Learning I 4 Q.H.

Developmental processes from prenatal life up to adolescence. Theories of learning and personality with research and case material covering major aspects of psychological development.

ED 1103 Human Development and Learning II 4 Q.H.

Basic overview of the continuity of human development in contemporary society, from the pre-adolescent period through adolescence, adulthood, middle age, and old age. Significant areas of growth, development, and adjustment for each period are considered, including social, sexual, personality, motivational, and cognitive aspects. ED 1102 is not prerequisite for this course.

ED 1104 Analysis of the Instructional Process 4 Q.H.

Students examine conflicting theories about the nature of teaching and learning. The effects of traditional and innovative educational systems upon learners are evaluated. Educational tools for describing, analyzing and evaluating aspects of learning and teaching are identified and their use by students is refined during sequential field observations and class meetings.

ED 1105 Day Care and Nursery Schools: Social and Cultural Origins 4 Q.H.
(Prereq. ED 1100 or equiv.)

An exploration of the origins of the increased contemporary use of out-of-the-family child care arrangements in the United States and in selected European and Third World nations. Course topics include the interrelation of industrialization, technology, and family functioning; contrasting varieties of child care centers

in operation today; and effects of the proliferation of child care centers on other aspects of society, such as neighborhood life, business, parents' lifestyles, elementary school curricula, government spending, and the job market in education and human services. Three to four hours per week of fieldwork in a child care setting are required of each student.

ED 1106 Creative Expression in Children 4 Q.H.
(Prereq. ED 1102)

Designed to assist students who are interested in working with children in a variety of settings. Discussion focuses on the potentials of creative expression in interpersonal communication; the relation of children's creative experiences to their cognitive, emotional, and social development; and the opportunity to acquire the hands on experience and confidence to work with various media available for creative expression.

ED 1300 Education and Psychosocial Development 4 Q.H.
(Prereq. ED 1100 or equiv.)

Theories and research on the socialization functions of education. Topics covered include the relative influence of early vs. post-childhood socialization and the role of diverse educational experiences and institutions in personality development.

ED 1301 Educational Applications of Social Psychology 4 Q.H.
(Prereq. ED 1102 or ED 1103)

Focus is on theory and research in social psychology especially relevant to education. Areas covered are prejudice in the classroom; the school as a setting for manifestation of authoritarian personality, attitude organization and change in an educational environment; the class and the clique as "small groups," the expression of need for achievement in various school structures; related topics.

ED 1302 The Human Services Professions 4 Q.H.
(Prereq. ED 1100, SOC 1100, or equiv.)

Explores what a human service agency is, how it comes into being, how it grows and changes. Attitudes, values, skills, and knowledge of the human services worker are analyzed, as are reasons why people in modern society require human services assistance. Human services are viewed from the eyes of clients as well as society as a whole. Fieldwork in a human service agency is a major course component, as is a good deal of independent study. Required for all human services majors; open to other students on space-available basis.

ED 1303 Mental Health in Teaching 4 Q.H.
(Prereq. ED 1102 or ED 1103)

Factors involved in the choice of teaching as a career and psychological and occupational factors that contribute to teacher happiness, dissatisfaction, adjustment, and maladjustment. Examination of these factors is a background against which to consider: 1) what teachers can do to foster healthy personalities,

2) how to deal with psychological forces in the classroom, and 3) steps to strengthen the emotional development of the normal child.

ED 1304 Language and Cognition: Educational Implications 4 Q.H.

(Prereq. ED 1102 or ED 1103)

Development of language and thought in the child: concept learning, problem solving, and language acquisition. Particular consideration given to the implications of current research and theory in these areas for educational practice.

ED 1305 Cross-Cultural Studies of Child Rearing and Education 4 Q.H.

(Prereq. ED 1102 or ED 1103)

Child rearing and child life in contrasting cultures around the world. Emphasis is on cognitive, emotional, and behavioral outcomes of concern to American educators, human services workers, and parents. Consideration is given to alternative patterns of child rearing possibly useful in modern society. Readings focus primarily on ethnographic descriptions of particular cultures and psychological comparisons of children from contrasting backgrounds.

ED 1306 Measurement and Evaluation 4 Q.H.

Emphasis in this course is on evaluation techniques for use in the classroom and teaching-learning situations at all levels. The importance of establishing behavioral objectives as a basis for evaluation also will be emphasized. Considerable emphasis will be placed on improving teacher-made (instructor-made) tests, especially objective-type tests. Students will be required to construct an objective test in their discipline for an instructional unit. Other evaluation techniques besides tests will be reviewed. Brief attention will be given to standardized measurement instruments of ability and achievement as they may be used in the evaluation of pupil progress.

ED 1307 Introduction to Educational Statistics 4 Q.H.

Emphasizes descriptive statistics useful in the evaluation of educational and related professional activities. Topics ordinarily covered include statistical notation, variability, probability, sampling techniques, linear regression, correlation, t-tests, and chi-square tests of significance. Examples of applications of these techniques will be drawn, so far as possible, from the fields for which students in the course are preparing, and may vary from quarter to quarter.

ED 1308 Education and Social Change 4 Q.H.

(Prereq. ED 1100 or equiv.)

A sociological exploration of educational systems as independent and dependent variables in social change. Instances of planned educational change in various countries and their implications for contemporary American society.

ED 1309 Organization and Politics of School Systems 4 Q.H.

(Prereq. ED 1100 or equiv.)

The political sociology of school systems in the United

States. An analysis of the power and authority structures in contemporary education. Who decides what and how? Who controls the system? How are the various interest groups organized? What are the mechanisms for conflict resolution? The relation between professional and nonprofessional interest groups.

ED 1310 Class and Ethnic Relations in Education 4 Q.H.

(Prereq. ED 1100 or equiv.)

The various ways in which the American class system and patterns of ethnic group relations have affected, and have been affected by, American education. The limitations and potential of educational institutions with respect to the resolution of intergroup conflicts and the establishment of equal educational opportunities.

ED 1311 Schools as Social Systems 4 Q.H.

(Prereq. ED 1100 or equiv.)

Analysis of schools as sociocultural subsystems within the larger society. Functional interrelation between student and school subcultures, status and role systems, authority structures in American schools.

ED 1312 Comparative Education 4 Q.H.

A comparison of the national school systems of selected foreign countries with the school system in the United States. Course content includes comparative data in the fields of teaching, speech and hearing, special education, and human services.

ED 1313 Current Issues in American Education 4 Q.H.

An analysis of the variety of current issues confronting teachers, speech and hearing clinicians, special education practitioners, and human services specialists. Attempts will be made to place these issues in a historical context.

ED 1314 Philosophy of Education 4 Q.H.

Objective is to help participants examine their own purposes in relation to those of the school as an institution. Course reading material will consist primarily of philosophical writings on topics such as the ethics of educational intervention, the delineation of educational concepts, the educational messages of long-range speculations and utopias, and normative assumptions underlying educational policies.

ED 1315 Seminar in Human Learning and Motivation 4 Q.H.

(Prereq. ED 1102 or ED 1103)

Survey and analysis of the literature on human learning and motivation. Emphasis on interaction between human learning and motivation in the developmental process and the classroom.

ED 1316 Seminar in Adolescent Psychology 4 Q.H.

(Prereq. ED 1103)

In-depth examination of motivational, intellectual, social, and emotional development of adolescents, from end of pre-adolescence to beginning of young adulthood. Special attention is given to current issues such as drug use, sexual behavior, and vocational

choice. Each student is expected to examine a topic of choice in some depth.

ED 1317 Seminar in Group Process 4 Q.H.

A study of the structure, dynamics, and function of face-to-face groups to learn about goal achievement and task orientation. The course operates mainly by committee or group instrumentation. The serious student should work to gain an understanding of the function of informal relationships within formal organizations, the various roles within groups, peer relationships, superior-subordinate relationships, authority and intimacy, and the inclusion and exclusion processes.

ED 1318 Seminar in Early Childhood Development (Prereq. ED 1102) 4 Q.H.

The theory and research regarding the cognitive, personality, and social development of children from birth to six years, with respect to the implications for early childhood education. Various existing programs examined and new directions explored.

ED 1400 Fundamentals of Reading I 4 Q.H.

This is the introductory course in developmental reading for prospective Early Childhood and Elementary teachers. Emphasis is on beginning reading as it relates to the clinical environment. Areas of skill development, such as word recognition and meaning comprehension, are studied in detail, as are some methods and techniques of testing and grouping. Also included are an introduction to some reading books and materials, methods of teaching, and the psychology of learning to read.

ED 1401 Introduction to Reading 4 Q.H.

This introductory course for noneducation majors examines reading as a psycholinguistic process. Precursor skills and abilities, word recognition, and comprehension are considered in light of the perceptual and language functions which inform them. Relevant research and theoretical models are presented. Attention is given to diagnosis and instruction of deficient populations. Reading instruction as carried out in most elementary schools today is examined from the perspective of current knowledge about children's linguistic and cognitive development. Methodology is considered where appropriate.

ED 1402 Fundamentals of Reading II 6 Q.H. (Prereq. ED 1400)

A continuation and extension of Fundamentals of Reading I. Study skills; speed and fluency development areas. The tutorial work is extended and the student is given further opportunity to achieve familiarity with books, materials, and methods.

ED 1403 Remedial Reading 4 Q.H. (Prereq. ED 1402)

For prospective teachers, this course may assist in familiarizing the student with some of the most commonly known reading problems in the typical classroom as well as in the Reading Clinic; analysis and evaluation of the typical diagnoses of such problems

and corrective programs. Tutorial work with a retarded reader, with each student keeping a log or journal of work with a particular reading problem.

ED 1404 Linguistics and Reading 4 Q.H. (Prereq. ED 1402)

The course explores the nature of language and relevant English language systems to help students acquire a linguistic perspective on the reading process and reading instruction. Pedagogical implications are examined in light of current knowledge about children's language acquisition and use. Early structural linguistic proposals for teaching reading are evaluated, considering recent psycholinguistic models of the reading process. Issues concerning the language-different child are discussed.

ED 1405 Literature and Learning Materials for Children and Young Adults 4 Q.H.

This course offers a comprehensive survey of the field of children's literature and literature for young adults. Although it is designed specifically for prospective teachers (and, in fact, is required of all Early Childhood and Elementary Education majors), it may also be taken as an elective by all students. Students will survey and evaluate examples of contemporary children's literature and other learning materials used in preschool, elementary, secondary, and remedial programs. Covered in this course are such recurring themes as: racism and sexism in children's books; controversial books for young children; contemporary illustrators; banned books, etc.

ED 1406 Elementary Education Curriculum I 4 Q.H.

Various patterns of organizing elementary school curriculum are analyzed on the basis of the general objectives of the public school system in the United States. Students are expected to evaluate and to organize units of work that can accommodate children at different developmental levels. The integrated approach to curriculum organization is emphasized with language arts, music, and arts as central focus.

ED 1407 Elementary Education Curriculum II (Prereq. ED 1406) 4 Q.H.

Social studies curricula in use in elementary school are described and evaluated. Criteria are developed to select appropriate social studies content, skills, and attitudinal objectives. Students are expected to use these criteria to develop social studies experiences that meet the developmental needs of learners and shed light on the lives of individuals and groups within different cultural settings.

ED 1408 Elementary School Math 4 Q.H.

This is a course in methods and materials of mathematics for Early Childhood and Elementary Education majors. This course provides the opportunities for University students to explore various strategies and materials of teaching mathematics in a manner that takes in account the developmental stages of children.

ED 1409 Elementary School Science 4 Q.H.

This is a course in methods and materials of science for Early Childhood and Elementary Education majors. This course offers the student the opportunity to explore some limited but varied content areas in science and to consider how these areas can be taught to children.

ED 1410 Methods and Materials for Teaching Adolescents and Adults I 4 Q.H.

(Prereq. ED 1104)

Consideration of specific methods and materials appropriate to teaching adolescents and adults to develop in the students an understanding of the complexities of the materials and methodology of the teaching-learning process, to encourage within students attitudes conducive to and identified with good tenets of teaching, to foster in the students acceptance of the need to grow constantly and to be aware of the continuing development of the learning-teaching process.

ED 1411 Methods and Materials for Teaching Adolescents and Adults II 4 Q.H.

(Prereq. ED 1410)

This course is sectioned according to the various subject areas of teaching techniques of organizing and presenting lessons, developing teaching materials, using audiovisual equipment, developing and implementing evaluation instruments, and selecting appropriate materials within the field of interest.

ED 1412 Fundamentals of Curriculum Development 4 Q.H.

An examination of how goals and objectives are selected and priorities are determined. Methods for designing educational programs to meet specified goals and methods of evaluating educational outcomes in terms of the goals of the program and techniques for modifying programs in the light of such performance.

ED 1413 Writing and the Teaching of Writing 4 Q.H.

(Prereq. ED 1104)

A study of the logical and rhetorical bases of exposition and argumentative writing; relationships of assumptions, assertions, and implications; the nature of proof in the sciences, social sciences, and the humanities; strategies of argumentation; the effective consequences of word choice and sentence structure.

ED 1414 Current Issues in Teaching the Gifted and Talented 4 Q.H.

Students will examine issues that affect the type and quality of education available to the gifted and talented in the United States. Various approaches and programs will be described and evaluated, and conclusions will be reached about their effectiveness. Research findings on the needs of this segment of the population of learners will be examined in order to provide some criteria for future curriculum development.

ED 1415 Teaching Reading to Adolescents and Adults 4 Q.H.

For secondary education majors in the Boston-Bouvé College of Human Development Professions who are preparing for teaching in the junior or senior high school. Emphasis is on language and symbolic process, word recognition, and meaning comprehension, and on methods and techniques of testing and grouping.

ED 1416 Supervised Field Placement: Early Childhood 2 Q.H.

A University-arranged institutional placement to allow students the opportunity to provide educational, remedial, and/or custodial services to children generally of ages two through five. Opportunity will be provided to analyze, develop, demonstrate, and evaluate skills and techniques in guiding the activities of children in nursery schools, day care centers, and/or kindergartens.

ED 1417 Student Teaching and Seminar 8 Q.H.

(Prereq. Formal acceptance into and completion of advanced professional sequence with minimum 2.0 q.p.a., both overall and in teaching major)

Full-time participation in a University-arranged and -supervised school program designed to provide opportunity for the analysis of learning and teaching and for the demonstration, evaluation, and development of teaching skills.

ED 1800 Directed Study 4 Q.H.

(Prereq. Permission of instructor)

This experience is provided for the student whose unique academic needs or interests cannot be adequately satisfied in any of the scheduled courses of the department. Preparation: Approval of the supervising faculty member and the Dean's Office of the Boston-Bouvé College of Human Development Professions. Approval forms must be submitted to the Dean's Office during the quarter prior to registration for the Directed Study.

ED 1801 Directed Study II 4 Q.H.

For students who have completed ED 1800.

INT 1330 Field Experience in Human Services I 4 Q.H.

Human services students are required to fulfill two fieldwork placements during the last two years of their program. Each placement consists of 150 hours on site. The type of placement varies according to the student's interest. Field experiences are supervised by University staff to maximize the student's learning opportunity.

INT 1331 Field Experiences in Human Services II 4 Q.H.

(Prereq. INT 1330 and junior or senior status, permission only)

Continuation of INT 1330.

Health, Sport, and Leisure Studies

- HSL 1100 Beginning Swimming** 1 Q.H.
Instruction in basic swimming skills for non-swimmers, with emphasis on personal water safety.
- HSL 1101 Intermediate Swimming** 1 Q.H.
(Prereq. HSL 1100 or equiv.)
Instruction in basic and advanced swimming skills, with emphasis on form and efficiency.
- HSL 1103 Water Polo** 1 Q.H.
(Prereq. HSL 1101 or equiv.)
Instruction in beginning water polo, with emphasis on personal skill, offensive and defensive team play.
- HSL 1104 Advanced Life Saving** 2 Q.H.
(Prereq. HSL 1101 or equiv.)
Instruction in Red Cross life-saving skills, techniques, and theory. Red Cross certification is possible.
- HSL 1105 Water Safety Instructor** 2 Q.H.
(Prereq. HSL 1101, HSL 1104)
Instruction in techniques, theory, and teaching methods in swimming and life-saving courses. Red Cross certification is possible.
- HSL 1106 Beginning Scuba** 2 Q.H.
(Prereq. HSL 1101 or equiv.)
Instruction in basic skin-diving and scuba-diving skills, with emphasis on personal safety.
- HSL 1107 Small Crafts** 1 Q.H.*
Introduction to basic skills in sailing.
- HSL 1109 Beginning Gymnastics I** 1 Q.H.
A coeducational approach to knowledge of and basic skills in floor exercise, vaulting, balance beam, parallel bars, uneven bars, high bar, and rings.
- HSL 1110 Women's Gymnastics II** 1 Q.H.
(Prereq. HSL 1109)
Focus is on knowledge and skill necessary in performing the beginning compulsory routines on the balance beam, floor exercise, uneven bars, and vaulting.
- HSL 1111 Women's Gymnastics III** 1 Q.H.
(Prereq. HSL 1110)
Skill and knowledge related to the performance of optional routines in the four areas of competitive women's gymnastics.
- HSL 1112 Men's Gymnastics II** 1 Q.H.
(Prereq. HSL 1109)
Skill and knowledge related to the performance of beginning compulsory routines on the high bar, side horse, rings, floor exercise, parallel bars, and vaulting horse.
- HSL 1113 Men's Gymnastics III** 1 Q.H.
(Prereq. HSL 1122)
Skill and knowledge related to performance in optional routines on the high bar, side horse, rings, floor exercise, parallel bars, and vaulting horse.
- HSL 1114 Badminton** 1 Q.H.
Instruction in basic badminton strokes, concepts, rules, strategies, and game play.

- HSL 1115 Intermediate/Advanced Badminton** 1 Q.H.
(Prereq. HSL 1114)
Instruction in badminton, including intermediate and advanced skills, with emphasis on singles and doubles match play and strategy.
- HSL 1116 Tennis** 1 Q.H.
Instruction in basic tennis strokes, concepts, rules, strategies, and game play.
- HSL 1117 Intermediate/Advanced Tennis** 1 Q.H.
(Prereq. HSL 1116 or equiv.)
Instruction in tennis, including intermediate and advanced skills, with emphasis on singles and doubles match play and strategy.
- HSL 1118 Beginning Archery** 1 Q.H.
Selected skills in target shooting and practical experience in archery games, novelty events, and conduct of tournaments.
- HSL 1119 Beginning Bowling** 1 Q.H.*
Focus is on development of knowledge and skill necessary for competent performance in bowling at the beginning level. Practice provided in nearby commercial alleys.
- HSL 1120 Beginning Golf** 1 Q.H.
Instruction in fundamental golf skills, knowledge of clubs and their use, and golf etiquette.
- HSL 1121 Beginning Self-Defense** 1 Q.H.
A survey of the principles and fundamental skills. Instruction is geared to the beginning and intermediate levels.
- HSL 1122 Beginning Boxing** 1 Q.H.
Instruction in boxing at the beginning level; emphasis on offensive and defensive techniques, scoring, training, and officiating.
- HSL 1123 Beginning Wrestling** 1 Q.H.*
Beginning level of instruction in basic wrestling maneuvers. Stress on fundamental breakdowns, escapes, takedowns, rides, and pinning combinations. Rules and scoring procedures discussed and modified matches conducted.
- HSL 1124 Beginning Fencing** 1 Q.H.
Instruction in basic foil fencing, including introduction to competition.
- HSL 1125 Intermediate/Advanced Foil Fencing** 1 Q.H.
(Prereq. HSL 1124 or equiv.)
Instruction in intermediate/advanced techniques of foil fencing, with special emphasis on competition, judging, and the use of electrical equipment.
- HSL 1126 Karate** 1 Q.H.
Fundamental techniques of unarmed combat for self-defense using the punches, kicks, and blocks of Tae Kwan Do/Karate.

* Lab fee required.

HSL 1127 Karate II 1 Q.H.
(Prereq. HSL 1126)
Continuation of HSL 1126, with progression to more complex techniques and combinations of punches, kicks, and blocks related to Tae Kwan Do/Karate.

HSL 1128 Roller Skating 1 Q.H.
Instruction for beginners in recreational roller-skating skills.

HSL 1129 Beginning Ice Skating 1 Q.H.
Instruction for beginners in recreational ice-skating skills.

HSL 1130 Figure Skating 1 Q.H.
(Prereq. HSL 1129 or permission of instructor)
Instruction in beginning and intermediate figure-skating skills.

HSL 1131 Yoga 1 Q.H.
Introduction to yoga skills and techniques for men and women at the beginning level.

HSL 1132 Weight Training 1 Q.H.
Introduction to the principles and use of resistive exercises: isotonic exercise (weights), isometric exercise, and the appropriateness of each.

HSL 1133 Physical Conditioning 1 Q.H.
Instruction in assessing one's personal physical fitness level with emphasis placed on establishing a personal exercise regimen based upon scientific principles of training. Special sections will be designated which use different mediums of exercise, such as aerobic dance techniques, running, and circuit training.

HSL 1134 Aerobic Exercise and Dance 1 Q.H.
An introduction to fitness through aerobic exercise and dancing.

HSL 1135 Yoga II 1 Q.H.
(Prereq. Yoga I or equiv.)
Refinement of poses learned in Yoga I (Iyengar style). Addition of more advanced standing and inverted poses, balances, and back bends.

HSL 1136 Beginning Handball 1 Q.H.
Knowledge and skills appropriate to handball at the beginning level.

HSL 1137 Beginning Cross-Country Skiing 1 Q.H.
Instruction in the fundamental techniques of cross-country skiing.

HSL 1138 Beginning Skiing 1 Q.H.
The course offers instruction in fundamental techniques of downhill skiing.

HSL 1139 Intermediate Skiing 1 Q.H.
(Prereq. HSL 1138)
The course provides instruction in downhill skiing, including intermediate and advanced techniques with emphasis on skill development.

HSL 1140 Basketball 1 Q.H.
Knowledge and skills appropriate for performance in basketball at the beginning level.

HSL 1141 Intermediate/Advanced Basketball 1 Q.H.
(Prereq. HSL 1140)
Knowledge and skills appropriate for performance in basketball at the intermediate to advanced levels.

HSL 1142 Volleyball 1 Q.H.
Knowledge and skills appropriate for playing volleyball at the beginning level.

HSL 1144 Field Hockey 1 Q.H.
Knowledge and skills appropriate for playing field hockey at the beginning level.

HSL 1145 Football 1 Q.H.
Fundamental skills and knowledge appropriate for beginning level performances in football.

HSL 1146 Softball 1 Q.H.
Knowledge and skill appropriate for performing in softball at the beginning level.

HSL 1147 Baseball 1 Q.H.
(Prereq. HSL 1146 or permission of instructor)
Knowledge and skill appropriate for baseball at the intermediate and advanced levels.

HSL 1148 Women's Lacrosse 1 Q.H.
Knowledge and skill appropriate for performance in lacrosse at the beginning level.

HSL 1149 Men's Lacrosse 1 Q.H.
Knowledge and skill appropriate for performance in lacrosse at the beginning level.

HSL 1150 Soccer 1 Q.H.
Knowledge and skill appropriate for performance in soccer at the beginning level.

HSL 1151 Movement Education 1 Q.H.
Concepts and techniques in movement education and exploration for elementary school educators.

HSL 1152 Folk and Square Dance 1 Q.H.
Introduction to folk and square dance.

HSL 1153 Modern Dance I 1 Q.H.
Introduction to modern dance technique and style.

HSL 1154 Modern Dance II 1 Q.H.
(Prereq. HSL 1153 or equiv.)
A continuation of HSL 1153 with progression to more complex modern dance techniques and combinations.

HSL 1155 Modern Dance III 1 Q.H.
(Prereq. HSL 1154 or equiv.)
A continuation of HSL 1154 with progression into the expressive and choreographic use of modern dance techniques.

HSL 1156 Ballet I 1 Q.H.
Introduction to ballet fundamentals with emphasis on alignment.

HSL 1157 Ballet II 1 Q.H.
(Prereq. HSL 1156 or equiv.)
A continuation of HSL 1156 with emphasis on developing lyrical style.

- HSL 1158 Ballet III** 1 Q.H.
(Prereq. HSL 1165)
A continuation of HSL 1157 with emphasis on expanding the repertory of classical ballet movements.
- HSL 1159 Jazz Dance I** 1 Q.H.
Introduction to the fundamentals of jazz dance with emphasis on alignment.
- HSL 1160 Jazz Dance II** 1 Q.H.
(Prereq. HSL 1159 or equiv.)
A continuation of HSL 1159 with emphasis on developing jazz dance style.
- HSL 1161 Jazz Dance III** 1 Q.H.
(Prereq. HSL 1160 or equiv.)
A continuation of HSL 1160 with progression into more complex dance techniques and longer combinations.
- HSL 1162 Rhythmic Analysis** 1 Q.H.
(Prereq. Dance concentration or permission of instructor)
Analysis of rhythm as it applies to movement skills and dance.
- HSL 1163 Ballroom Dance** 1 Q.H.
An introduction to traditional and contemporary partner dancing.
- HSL 1165 Dance Improvisation** 1 Q.H.
(Prereq. HSL 1153, HSL 1156, or HSL 1159)
Practice in the use of dance as a medium for artistic expression. Emphasis on the development of skill in the use of improvisational techniques.
- HSL 1167 Beginning Racquetball** 1 Q.H.
Knowledge and skills appropriate for performance in racquetball at the beginning level.
- HSL 1173 Beginning Track and Field** 1 Q.H.
Instruction in the fundamental skills in the various track and field events.
- HSL 1174 Intermediate/Advanced Track and Field** 1 Q.H.
(Prereq. 62.16L or equiv.)
Instruction in intermediate/advanced techniques in track and field events. Emphasis is placed on improvement of individual skills; techniques of officiating are discussed.
- HSL 1202 Recreational Sports Leadership** 2 Q.H.
The exploration of teaching techniques involved in team, dual, and individual sports. Methods, such as the part-whole and whole-part, are presented and investigated to establish relevance to each of the sports areas under study. Students are given the opportunity to develop skills in planning units and individual lessons. In addition, students are expected to apply practical experience by teaching one lesson in each of the sports areas studied.
- HSL 1205 Introduction to Winter Skills** 1 Q.H.
Course investigates several winter sports, their origins and history, current population demands, and future trends. Various types of equipment and their use, as well as special health and safety considerations for winter sports, are discussed. Sports to be studied

include cross-country skiing, snowshoeing, skating, tobogganing, and snowmobiling.

- HSL 1209 Basic Rockclimbing and Rappelling** 2 Q.H.*
A training program designed to introduce potential rockclimbing leaders to all necessary facets of the sport. While successful completion of the program does not qualify a student to lead rockclimbing trips, it may help students to gain a better perspective of both the necessary skills and the leadership role in rockcraft. The program consists of a weekend of practical experience and two introductory discussion sessions at Bouvé. Program areas include activities and information regarding basic climbing and rappelling experience, knots, safety, delaying, equipment usage and care, and leadership. The lab fee includes lodging, meals, equipment use, and instruction.

- HSL 1211 Analysis and Coaching of Softball** 2 Q.H.
(Prereq. HSL 1146)
The basic techniques and responsibilities of coaching intramural, interscholastic, and intercollegiate softball, including advanced skill analysis and management.

- HSL 1212 Basic Canoeing** 2 Q.H.
Instruction leading to an opportunity to qualify for Red Cross basic canoeing certification. Classes are held at the Warren Center and include theory and practical experience.

- HSL 1220 Foundation of Leadership in Leisure Service** 4 Q.H.
The course offers study of the basic principles of leadership relevant to the fundamentals of leadership in leisure services. Subjects include leadership styles, motivation, task sequencing, and evaluation.

- HSL 1221 Introduction to Recreation and Leisure** 3 Q.H.
The course provides an overview of the recreation and leisure service field with emphasis on history, scope, rationale, setting, programs and services, basic trends and issues, and future considerations. The course explores the basic elements of the recreation and leisure service field as they relate to society, the leisure profession, and the individual.

- HSL 1222 Leisure Awareness and Leadership Camp** 2 Q.H.**
One-week resident camp experience at the Warren Center, which emphasizes experiential learning, skill development, group processes and personal reflection. The purpose of the Leisure Awareness and Leadership Camp is to maintain the tradition upon which a philosophical foundation of leisure awareness and education is constructed. To be effective in a challenging recreation leadership role, one must first become aware of what these concepts mean personally and then concentrate on developing facilitation knowledge and skills. LALC enables students to

* Lab fee required.

** Resident fee required.

become aware of their leadership potential in the profession. Course is required and scheduled to be taken at the conclusion of the freshman year.

HSL 1223 Life/Career Planning 4 Q.H.

This course is designed to help students develop life/career planning skills for use in pursuit of a career in recreation and leisure studies. A variety of careers, co-op job opportunities, and lifestyles of professionals in the field are explored. Students are given the opportunity to assess their own interests, values, needs, and skills, and to develop job-finding skills, including résumé writing and interviewing techniques.

HSL 1250 Creative Dance I 2 Q.H.

(Prereq. HSL 1154 or HSL 1165)

Theory and practice of methods and materials in teaching creative dance to elementary school children. Examination of children's performance and appropriate teaching techniques with off-campus observation and experience. Designed to partially satisfy pre-practicum requirements for teacher certification at K-9 grade level.

HSL 1251 Creative Dance II 2 Q.H.

(Prereq. HSL 1154 or HSL 1165)

Theory and practice of methods and materials in teaching creative dance to secondary school youth. Examination of performance and teaching techniques with off-campus observation and experience. Designed to partially satisfy pre-practicum requirements for teacher certification at 5-12 grade level.

HSL 1252 Dance Composition I 3 Q.H.

(Prereq. HSL 1154 or permission of instructor)

Analysis of the basic dance choreographic elements—space, force, and time. Student solution of choreographic problems.

HSL 1253 Group Dynamics I 3 Q.H.*

An introduction to group dynamics through selected activities, discussion, and living and working together. A resident living experience for one week at the Warren Center is an integral part of the course.

HSL 1254 First Aid 2 Q.H.

Emergency care procedures recommended for the home, school, and community. Emphasis on practices endorsed by the American Red Cross.

HSL 1255 Human Movement 3 Q.H.

An introduction to the nature and role of human movement and the analysis of skillful movement performance through participation and observation. Introduction to the objectives, literature, and organization of the profession of physical education.

HSL 1256 Life/Career Planning 3 Q.H.

An examination and exploration of careers in physical education and related fields. The course provides an opportunity for students to assess personal skills and abilities, to research jobs of interest, and to practice specific career-planning skills.

HSL 1257 History and Philosophy of Physical Education

3 Q.H.

A survey of physical education from ancient times to the present. The influence of major philosophical positions upon the nature of physical education programs is analyzed.

HSL 1258 Elementary School Activities 3 Q.H.

Focus is on introductory knowledge and skills necessary for teaching physical education to elementary-school-aged children. Students are expected to learn about children's performance and appropriate teaching techniques through observation and actual experience in off-campus schools and learning centers. Course is designed to satisfy partially the pre-practicum requirements for teacher certification at the K-9 level.**

HSL 1259 Secondary School Activities 3 Q.H.

Physical activity appropriate for secondary school youth is studied in relation to their level of development and interest. Students are expected to learn about pupils' performance and appropriate teaching techniques through observation and actual experience in off-campus schools and learning centers. Course is designed to satisfy partially the pre-practicum requirements for teacher certification at the grades 5-12 level.**

HSL 1260 Perceptual-Motor Development 4 Q.H.

(Prereq. ED 1102 and ED 1103; may be taken concurrently)

Course offers a study of the development of motor skills from birth through infancy, early childhood, adolescence, and adulthood, including skilled performance of the aged. Age expectations for perceptual-motor behavior are considered, with a focus on a functional adequacy in skilled performance.

HSL 1261 Anatomy and Physiology I 4 Q.H.

Gross anatomy and physiology of the human skeletal, joint, nervous, and muscular systems.

HSL 1264 Adapted Physical Education I 4 Q.H.

(Prereq. HSL 1606, HSL 1261)

Survey of characteristics and attitudes pertaining to special-needs individuals, with particular emphasis on the effects of their presence on current physical activity programs. Observations of special-needs programs are included. Course is designed to satisfy partially pre-practicum requirements for teacher certification at the grade level K-12.

HSL 1265 Early Childhood Development 4 Q.H.

A study of the development of fundamental motor patterns (run, catch, kick, strike, jump, throw) from ages 0 to 5 years, including perceptual-motor relations operating in vision, audition, and proprioception.

HSL 1266 Physical Conditioning Programming

(Prereq. HSL 1133 and 1132)

2 Q.H.

Students will learn how to design and deliver instruction related to physical conditioning of the body.

**Teacher certification requirements available in 3 Dockser Hall.

*; job fee required

HSL 1267 Methods and Materials in Teaching Folk, Square, and Ballroom Dance 1 Q.H.

(Prereq. HSL 1152 and 1134)

Theory and practice in the application of methods and materials for teaching folk, square, and ballroom dance.

HSL 1268 Basic Athletic Training Laboratory 1 Q.H.

(Prereq. concurrent with HSL 1605)

The biomechanical and anatomical principles as well as indications and contraindications for application of the various wrapping and strapping techniques involved with athletic injuries will be discussed. The indications for use and types of protective devices (braces, splints, etc.) will also be presented. Laboratory time for practical application and development of skills will be utilized.

HSL 1272 Dance Composition II 3 Q.H.

(Prereq. HSL 1160)

Analysis of the choreographic process including content, form, technique, and projection. Student solution of choreographic problems based upon literal and nonliteral themes.

HSL 1280 Foundations of Health Education 2 Q.H.

Provides opportunities for learners to investigate the broad spectrum of career possibilities in community and school health education and to ascertain their potential roles in the field. Philosophy of health education, the conceptual approach, and trends in health education are considered.

HSL 1281 Current Issues in Health 4 Q.H.

Focus is on the development of high-level wellness. Topics may include emotional health, nutrition, fitness, sexuality, drug use, disease, consumer issues, and environmental impacts. Emphasis is placed on the needs of the participants.

HSL 1282 Wellness 4 Q.H.

Experiential exploration of the concept of wellness, examining behaviors and lifestyle choices that lead to a high level of physical, emotional, and spiritual well-being. Issues include assessment of health risk, behavioral change, lifestyle analysis, the life cycle, and stress management through self-analysis.

HSL 1283 Introduction to Safety 2 Q.H.

Introduces the principles and fundamentals of safety education as they relate to people in their environment. Concerns safety as a social problem; considers major accident areas, accident causes, and liability; and analyzes possible solutions to accident problems.

HSL 1284 Instructional Resources 2 Q.H.

Introduction to the use of audiovisual media as educational tools. Production of slide presentations, transparencies, bulletin boards, displays, etc., is included. Opportunities are provided for experiences in operating selected equipment.

HSL 1285 Health Concerns for Youth 4 Q.H.

Application of health concepts to assist youth in

reaching a higher level of wellness through preventive measures. Significant health concerns are identified and dealt with as they relate to health professionals, teachers, and adults. Course is designed to satisfy partially the prepracticum requirements for teacher certification grade levels 5-12.

HSL 1286 Nutrition 4 Q.H.

This course offers the student the opportunity to learn and evaluate nutrition information both as a consumer and future educator. The chemical, biological, and physiological bases of nutrition are explained.

HSL 1300 Swimming Analysis 2 Q.H.

(Prereq. HSL 1101 or permission of instructor)

Instruction in theory, analysis techniques, and teaching methods in swimming.

HSL 1301 Analysis and Coaching of Men's Gymnastics 2 Q.H.

(Prereq. HSL 1113)

Skill analysis and coaching of men's gymnastics, with emphasis on appropriate teaching methods, new trends, and judging.

HSL 1302 Analysis and Coaching of Badminton 2 Q.H.

(Prereq. HSL 1115)

Analysis of performance and methods of teaching and coaching in badminton.

HSL 1303 Analysis and Coaching of Tennis 2 Q.H.

(Prereq. HSL 1117)

Analysis of performance and methods of teaching in tennis.

HSL 1304 Analysis and Coaching of Fencing 2 Q.H.

(Prereq. HSL 1125)

Advanced skill analysis and coaching of fencing. Special emphasis on current research and teaching methods.

HSL 1305 Analysis and Coaching of Golf 2 Q.H.*

(Prereq. HSL 1120 or equiv.)

Advanced skill analysis and coaching of golf. Special emphasis on course play and teaching methods.

HSL 1306 Analysis and Coaching of Track/Field 2 Q.H.

(Prereq. HSL 1135 or equiv.)

Advanced skill analysis and coaching techniques for selected track and field events. Special emphasis is placed on the analysis of common movement patterns, teaching methods, and coaching techniques.

HSL 1307 Analysis and Coaching of Wrestling 2 Q.H.

(Prereq. HSL 1123 or equiv.)

Analysis of performance and techniques of teaching selected wrestling skills are covered in detail. Application of research to methodology is stressed.

HSL 1308 Analysis and Coaching of Baseball 2 Q.H.

(Prereq. HSL 1147)

The basic techniques and responsibilities of coaching interscholastic and intercollegiate baseball, including advanced skill analysis, position and team play, conditioning, practice organization, and team management.

* Lab fee required.

HSL 1309 Analysis and Coaching of Basketball(Prereq. HSL 1140) **2 Q.H.**

The basic techniques and responsibilities of coaching interscholastic and intercollegiate basketball, including advanced skill analysis, position and team play, conditioning, practice organization, and team management.

HSL 1310 Analysis and Coaching of Field Hockey(Prereq. HSL 1144) **2 Q.H.**

The basic techniques and responsibilities of coaching intramural, interscholastic, and intercollegiate field hockey, including advanced skill analysis, position and team play, conditioning, practice organization, and team management.

HSL 1311 Analysis and Coaching of Football(Prereq. HSL 1145) **2 Q.H.**

The basic techniques and responsibilities of coaching interscholastic and intercollegiate football, including advanced skill analysis, team conditioning, offensive and defensive systems, practice organization, team management, and coaching staff organization.

HSL 1312 Analysis and Coaching of Lacrosse(Prereq. HSL 1148 or HSL 1149) **2 Q.H.**

The basic techniques and responsibilities of coaching intramural, interscholastic, and intercollegiate lacrosse, including advanced skill analysis, position and team play, conditioning, practice organization, and team management.

HSL 1313 Analysis and Coaching of Soccer(Prereq. HSL 1150) **2 Q.H.**

The basic techniques and responsibilities of coaching intramural, interscholastic, and intercollegiate soccer, including advanced skill analysis, position and team play, conditioning, practice organization, and team management.

HSL 1314 Movement Fundamentals**1 Q.H.**

A course in posture and movement correctives. Focus is on both intellectual and experiential knowledge of the body and its potential for change.

HSL 1315 Analysis and Coaching of Volleyball**(Men-Women) 2 Q.H.**

(Prereq. HSL 1142)
The basic techniques and responsibilities of coaching intramural, interscholastic, and intercollegiate volleyball, including advanced skill analysis, position and team play, conditioning, practice organization, and team management.

HSL 1316 Theory of Officiating**2 Q.H.**
Knowledge and skills in the basic concepts of officiating individual and team sports.**HSL 1317 Sports Officiating: Team Sports****2 Q.H.**
Theory, practice, and techniques of officiating in team sports such as basketball and volleyball.**HSL 1318 Sports Officiating: Individual Sports****2 Q.H.**
Theory, practice, and techniques of officiating individual sports such as tennis and badminton.**HSL 1319 Analysis and Coaching of Softball**(Prereq. HSL 1146) **1 Q.H.**

Basic techniques and responsibilities of coaching intramural, interscholastic, and intercollegiate softball, including advanced skill analysis and management.

HSL 1320 Analysis and Coaching of Women's**Gymnastics 2 Q.H.**

(Prereq. HSL 1111)

Skill analysis and coaching of women's gymnastics, with emphasis on appropriate teaching methods and new trends.

HSL 1321 Modern Dance IV**1 Q.H.**

(Prereq. HSL 1155 or equiv.)

A continuation of HSL 1155 with emphasis upon the application of modern dance technique and style in the performance of modern dance repertory.

HSL 1322 Ballet IV**1 Q.H.**

(Prereq. HSL 1158 or equiv.)

A continuation of HSL 1158 with in-depth study of the complicated variations derived from classical ballet. Emphasis on line and expressive interpretation.

HSL 1324 Jazz Dance IV**1 Q.H.**

(Prereq. HSL 1161 or equiv.)

A continuation of HSL 1161 with emphasis on style and expressive interpretation. Progression into the choreographic use of jazz dance.

HSL 1325, 1326, 1327 Dance Rehearsal and**Performance I, II, III (each) 1 Q.H.**

(Prereq. Permission of instructor)

Designed in order that students may develop skill in performance. Students may choreograph, stage, and perform an original work or perform in the original work of a guest or faculty choreographer.

HSL 1400 Group Dynamics**3 Q.H.**

The study of human behavior in groups is approached through lectures, reading, and structural group experiences. Major areas of concentration include communication, leadership, decision making, and evaluation of the group process.

HSL 1401 Program Planning in Recreation**4 Q.H.**

The course focuses on examination of program content, leadership, administration, and facilities associated with the effective delivery of leisure services under the auspices of public, private, religious, industrial, and voluntary agencies.

HSL 1402 Leisure and Lifestyles**4 Q.H.**

The course focuses on aspects contributing to lifestyles and the role of leisure. Specific lifestyles are examined through readings and video-taped movies. Students have the opportunity to examine the effect of leisure on their present lifestyles and future aspirations.

HSL 1403 Concepts of Leisure:**Sociopsychological Perspectives 4 Q.H.**

The course focuses on exploration of the various sociopsychological perspectives of leisure and the relations of mores, social structure, roles, values, and

personality to leisure expression. Investigation of other pertinent social and environmental factors that contribute to the phenomenon of leisure is included.

HSL 1406 Internship Seminar 1 Q.H.

Course offers preparation for professional field assignment in a leisure service setting. Focus is on identification and assessment of student career goals, analysis of previous volunteer and/or employment experience, professional involvement, and facilitation of the internship placement process.

HSL 1408 Research Methods 4 Q.H.

Study of basic statistics, the use of experimental and quasi-experimental design, sampling, instrumentation, data collection, and analysis as applied in recreation and leisure studies.

HSL 1409 Research Applications 4 Q.H.

The course examines the use of research methods in selected professional applications ranging from the ongoing research of departmental faculty to student-originated studies.

HSL 1410 Senior Seminar in Contemporary Issues and Trends in Recreation and Leisure

4 Q.H.

The course offers examination and discussion of contemporary issues and trends in the field of recreation and leisure. Focus is on critical aspects of leisure services: legislation, consumer advocacy, professional development, research, and innovations for the improvement of service delivery.

HSL 1420 Urban Recreation 4 Q.H.

The course provides an examination of the different cultural and sociological patterns of various ethnic groups who live in an urban setting. Various recreational activities are suggested for each group. Other pertinent recreational issues common to the urban community are studied.

HSL 1421 Management of Recreation and Physical Education Programs 4 Q.H.

The course focuses on management procedures of recreation and physical education facilities operations. Area and facility design, personnel policies, and problem solving related to administration and management is emphasized.

HSL 1422 Program Evaluation in Recreation 4 Q.H.

The course examines comprehensive systems for evaluating program effectiveness as it relates to the consumer of recreation services. Major emphasis placed on developing an evaluation system for an agency of the student choice. Case studies are drawn from the public, nonprofit, and commercial sectors.

HSL 1423 Commercial Recreation Marketing 4 Q.H.

Course offers an examination of commercial and private sector recreation services. Case studies workshops, and practical problems are related to managing leisure opportunities for resorts, country clubs,

theme parks, tourism, sports clubs, manufacturing and merchandising, and industrial recreation.

HSL 1425 Leisure and the Community School 4 Q.H.

The course provides exploration (through class lectures, discussions, readings, and on-site visitations) of the theoretical, operational, and motivating aspects of the community school concept. An opportunity to investigate the complex role played by leisure in the community school.

HSL 1426 Budget Analysis 4 Q.H.

The course focuses on the study and use of analytical techniques that can improve budgeting decisions. Topics include cost-effectiveness and benefit-cost analysis, efficiency measures, pricing, forecasting, and present-value analysis for solution of capital and operating budget problems in the nonprofit and commercial recreation sectors.

HSL 1427 Survey of Recreation Facilities 3 Q.H.

Study of fundamental management and administration concepts for a wide variety of outdoor areas and facilities such as parks, beaches, ice rinks, marinas, camps, and community centers.

HSL 1440 School Camping 3 Q.H.
(Prereq. HSL 1444 or permission of instructor)

Investigation of outdoor education as it applies to school camp organization, administration, program planning, and educational significance. Each student is required to participate in a one-week supervised practical experience at a designated school camp.

HSL 1441 Camp Administration 3 Q.H.

The course offers investigation of camp management guidelines including site development, health and safety, hiring and staff training, public relations, American Camping Association standards, legal regulations, organization within camps, programs, and other selected administrative aspects.

HSL 1442 Leadership and Organization of Wilderness Recreation 4 Q.H.

The course offers in-depth investigation of the leadership, organization, planning, implementation, and evaluation of outdoor pursuits. Particular emphasis is placed on multiday experiences in remote or wilderness setting. An extended outdoor practicum in a wilderness setting is required.

HSL 1443 Interpretation of Ecological and Social History 4 Q.H.

The course examines the employment of site visitations and problem-solving methods to investigate human interaction with and manipulation of the physical, biological, and social environment. The course provides the opportunity to acquire knowledge of ecosystem aspects which can be applied to environmental interpretation and decision-making sectors of ecosystem and recreation management.

HSL 1444 Environmental Education 4 Q.H.

The study of the philosophy and history of environmental education in political, social, and educational movements. Exploration of methods of developing, teaching, and evaluating environmental education curricula applicable to schools, camps, parks, and environmental centers.

HSL 1445 Seminar on Environmental Issues and Legislation 4 Q.H.

The course offers study of the development of attitudes toward the environmental and critical investigation of the history of the environmental movement. Investigation of current environmental issues and laws affecting our ecosystem and lifestyles through integrating theories from sociology, ecology, economics, and politics. Exploration of degrees of ecological and social constraints on future growth and definition of alternative futures.

HSL 1446 Elements of Outdoor Recreation Planning 4 Q.H.

The course offers exploration of the nature and significance of the outdoor recreation experience and how our natural resources can optimally meet people's needs. Focus is on the elements of outdoor recreation planning; identification, evaluation, assessment, and implementation. Relation of social groups, natural resources, and environmental concerns to outdoor recreation planning are included.

HSL 1460 Process of Aging 3 Q.H.

The course covers the study of phases of aging; discussion of the physical, social, and emotional changes and problems that face the aged; the study of types of services offered to senior citizens, and the sources of funds allocated to sponsor such services. The role of recreation and leisure programming are emphasized.

HSL 1461 Camping and Outdoor Education for the Handicapped 3 Q.H.

Innovations in outdoor learning with an emphasis on wellness, the American Indian, outdoor adventure activities, and a holistic perspective on the individual with a disability. Observations and practical applications are included.

HSL 1462 Leisure Counseling 4 Q.H.

This course provides students an opportunity to develop fundamental group counseling skills through the use of specialized strategies and traditional verbal counseling techniques. Major focus is on lifestyle awareness counseling.

HSL 1463 Overview of Physical Disabilities 4 Q.H.

The course offers a holistic and humanistic approach to people with physical disabilities including amputations, traumatic conditions, sensory impairments, neurological, orthopedic, and cardiovascular disorders. Rehabilitation procedures and treatment, adjunctive therapies, prosthetics, orthotics, assistive devices and techniques, and reentry into the community from

the individual, familial, and societal perspectives are discussed.

HSL 1464 Program Planning in Therapeutic Recreation 4 Q.H.

The course examines advanced planning of comprehensive therapeutic recreation services. Focus is on systems approach to planning for individuals and groups. Included are an intensive examination of the philosophy of therapeutic recreation; the study of the functional elements of activities, current legislation, and standards for service delivery.

HSL 1465 Therapeutic Recreation with Developmentally Disabled Persons 4 Q.H.

Course offers a review of major phases of normal growth and development for the purpose of understanding the causes and impact of developmental disabilities. Emphasizes role of play experiences in achieving sequentialized skills and concepts, practices and procedures employed in program design.

HSL 1466 Foundations of Psychiatric Services in Therapeutic Recreation 4 Q.H.

(Prereq. Permission of the instructor)

The course focuses on orientation to the foundations of mental health and variables affecting mental illness; examination of various psychiatric disorders and treatment modalities and the role of activity therapy in the treatment of mental illness; review of contemporary trends in psychiatry that pertain to therapeutic recreation.

HSL 1467 Social and Psychological Impacts of Illness and Disabilities 4 Q.H.

(Prereq. HSL 1463)

Exploration of relevant issues related to disability such as societal understanding of disability, handicapping conditions, adjustment, social networks, and the therapeutic use of self through a mixture of lectures, group discussion, guest speakers, and films. Examination of self in the role of change agents and care providers.

HSL 1470 Internship in Recreation and Leisure Services 12 Q.H.

Professional field assignment in leisure service settings designed to prepare students for professional career choices. Supervision by faculty, conferences with professional staff, and seminars. Ten-week internship.

HSL 1500 Mental Health 4 Q.H.

An investigation of emotional health and well-being as they relate to total health with emphasis on factors that influence emotional behavior. Various approaches to emotional health in public school programs are included.

HSL 1502 Communicable and Degenerative Diseases 4 Q.H.

The disease immunity process, with emphasis on prevalent communicable diseases in the United States today and their transmission; chronic diseases, cardiovascular diseases, cancer, diabetes, and other

constitutional and degenerative diseases and disorders that affect the nation's health. Predominant themes are personal health attitudes and behaviors. Personal health responsibility is analyzed.

HSL 1503 Human Sexuality and Family Dynamics

4 Q.H.

Sexuality from a physical, psychological, social, historical, and cultural perspective; needs and concerns about sexuality at various stages in life including a variety of approaches to sex education within schools, community, and the family.

HSL 1504 Longevity and Aging

4 Q.H.

Study of the biological, psychological, and sociological aspects of human aging. Consideration is given to the importance of one's current lifestyle in relation to the phenomenon of longevity and the quality of life.

HSL 1506 Evolving Patterns of Community Health Education

4 Q.H.

Principles of community health, with emphasis on contemporary local, national, and international organizations for meeting health problems; health care delivery, consumer health issues, environmental health, community resources, and the role of health education in the community.

HSL 1507 Seminar I

2 Q.H.

(Prereq. ED 1306)

An introduction to research and scientific writing, culminating in a research project in an area of special interest, is included.

HSL 1508 Seminar II

2 Q.H.

(Prereq. HSL 1507)

Discussion of current problems and new developments as they relate to health education in school and in a variety of community settings.

HSL 1509 Organization and Administration of Health Education Programs

4 Q.H.

Principles and methods of organization and administration of school and community health education programs; ethics, personnel, budget, facility management, and priorities.

HSL 1510 Health Counseling

4 Q.H.

The identification of physical, mental, emotional, and social health problems; remedial procedures; and counseling techniques to aid health educators to deal more effectively with various health problems.

HSL 1511 Independent Study I

1 Q.H.

HSL 1512 Independent Study II

2 Q.H.

HSL 1513 Independent Study III

3 Q.H.

HSL 1514 Independent Study IV

4 Q.H.

Designed to provide the student with an opportunity for concentrated planning and research. In-depth study may be carried out in a topic area of health, sport, or leisure. Outline of proposed study must be submitted.

HSL 1515 Public Health Administration

4 Q.H.

History and overview of public health agencies and the organization of services for meeting public health

needs at the local, state, federal, and international levels. Focus is on today's major health problems and services.

HSL 1516 Drug Use and Abuse

4 Q.H.

An exploration of the use and abuse of drugs in our society, including prescription and OTC drugs, alcohol, and smoking. Physiological, psychological, and sociological effects of drugs on humans are explored.

HSL 1517 Death, Bereavement and Suicide

4 Q.H.

An interdisciplinary approach to the contemporary issues involved in death and bereavement. Death is examined from a lifecycle approach, including the dynamics of grief and mourning. Suicide is examined as it relates to self-concept and stress.

HSL 1518 Community Health Assessment

4 Q.H.

Focus is on today's major community health problems, with an overview of the methods of assessment and evaluation of health needs at the local, state, federal, and international levels.

HSL 1520 Student Teaching

12 Q.H.

(Prereq. HSL 1585; HSL 1285; ED 1104)

Observation and practical teaching experience in public school health education programs. Supervision and evaluation by personnel, in cooperating schools and by Boston-Bouvé College of Human Development Professions faculty; seminars. Course is designed to satisfy partially the prepracticum requirements for teacher certification at grade levels 5–12.

HSL 1521 Field Experience

12 Q.H.

(Prereq. HSL 1585)

Observation and practical field experience in selected community health education settings. Supervision and evaluation by personnel, in cooperating schools and by Boston-Bouvé College of Human Development Professions faculty; seminars.

HSL 1585 Teaching Procedures/Curriculum in Health Education in School and Community

4 Q.H.

(Prereq. HSL 1285; ED 1104)

The prospective health educator is introduced to health education curriculum, techniques of planning, and pertinent methods and materials in school and community health education. Course is designed to satisfy partially the prepracticum requirements for teacher certification at grade levels 5–12.

HSL 1600 Psychology of Sport

2 Q.H.

(Prereq. P.E. or permission of instructor)

The psychological analysis of behavioral patterns and deviations of sports participants, including spectators and coaches. Emphasis on emotions, motivation, competition, and learning factors. Discussion of current sports highlights.

HSL 1601 Sociology of Sport and Dance

2 Q.H.

(Prereq. Permission of instructor)

The study of sport and dance as social institutions, including theories explaining the role of each in contemporary society and the part of each in evolving societies.

HSL 1602 Theory of Coaching 2 Q.H.

An analysis of learning principles, sociology, and psychology as applied to coaching individual, dual, and team sports. Techniques and standards of squad recruitment, organization, leadership, and coaching ethics are presented.

HSL 1603 Theory of Play 2 Q.H.

The nature of play and a study of cross-cultural patterns of play. An investigation of selected theories of play, including Huizinga, Caillois, Sutton-Smith, and Lee.

HSL 1604 Group Dynamics II 2 Q.H.*
(Prereq. HSL 1253)

Exposure to outdoor activities typical of outdoor adventure programs. Exposure to practices and philosophies of Project Adventure, Outward Bound, and national outdoor leadership schools, with an emphasis on skills teaching. Resident experience required.

HSL 1605 Basic Athletic Training 3 Q.H.

The training and conditioning procedures in athletic programs; special emphasis on the prevention of athletic injuries; roles of the trainer, athlete, coach, and health service.

HSL 1606 Perceptual-Motor Learning 4 Q.H.
(Prereq. PSY 1111 or equivalent)

A focus on the way information processing is involved in perceptual-motor learning and performance. Basic research data are applied to learning and executing skills in a variety of sports settings.

HSL 1607 Measurement and Evaluation 4 Q.H.
(Prereq. ED 1307)

Construction, use, selection and interpretation of evaluative tools applicable to health, sport, and leisure studies; elementary statistical methods.

HSL 1608 Clinical Athletic Training 2 Q.H.
(Prereq. HSL 1605)

The student athletic trainer's introduction to clinical experience with an opportunity to practice the various skills for evaluation and treatment of the injured athlete.

HSL 1609 Advanced Athletic Training 4 Q.H.
(Prereq. HSL 1605)

The advanced preparation and utilization of conditioning programs and their administration for prevention and care of injuries associated with competitive athletics.

HSL 1610 Anatomy and Physiology II 4 Q.H.
(Prereq. HSL 1261)

Gross anatomy and physiology of the human cardiovascular, respiratory, digestive, urinary, and endocrine systems. Metabolism, calorimetry, and other applied topics will also be covered.

HSL 1611 Kinesiology 4 Q.H.
(Prereq. HSL 1261)

Science of human motion and anatomic and mechanical principles as they relate to an understanding of

skillful, efficient, and purposeful human motion. The internal and external forces acting upon a human body and the effects produced will be examined.

HSL 1612 Physiology of Exercise 4 Q.H.
(Prereq. HSL 1610)

Study of the immediate and long-range effects of exercise upon the human body with emphasis on the cardiovascular and respiratory systems, muscles, and metabolism; physical fitness, body composition, and selected components of motor performance-assessment techniques and training principles. Introduction to indirect open-circuit calorimetry and EKG monitoring.

HSL 1613 Laboratory in Exercise Testing and Prescription 4 Q.H.

(Prereq. HSL 1612)

Practicum in assessment of functional cardiovascular, muscular strength, muscular endurance, flexibility and body composition; prescription of exercise programs used to improve the above functions: volunteer work as an exercise test technician and exercise leader in a fitness class.

HSL 1614 Electrocardiography 4 Q.H.
(Prereq. HSL 1612)

A study of basic and intermediate electrocardiography including cardiac function, lead systems, rate, rhythm, axis, infarction, ischemia, hypertrophy, effects of cardiovascular drugs, and effects of exercise.

HSL 1615 Critical Teaching Skills 4 Q.H.
(Prereq. HSL 1258 or HSL 1259 and pre-practicum experience)

Course offers analysis of direct and indirect, verbal and nonverbal teaching methods for classroom and activity teaching, using techniques such as micro-teaching, peer teaching, and simulation. Techniques for measuring teacher behavior, such as interaction analysis, are studied and analyzed. A laboratory experience in an education setting is an essential activity.†

HSL 1616 Curriculum Development 3 Q.H.

Course focuses on basic foundations of curriculum development stressing fundamental principles and guides to curriculum organization, format, and evaluation. Course material includes experience using the taxonomies of education objectives and survey of existing curricula and current curriculum trends.

HSL 1617 Administration of Physical Education 4 Q.H.

The organization and administration of programs in physical education, with emphasis on elementary and secondary school programs.

HSL 1618 Exercise and Activities for the Older Adult 4 Q.H.

Principles of physical activity and the organization of physical activity programs for the elderly in public and private agencies are studied. Research and practical applications of theory are required.

* Lab fee required.

†Designed to satisfy partially pre-practicum requirements for teacher certification.

HSL 1619 Adapted Physical Education II 4 Q.H.
(Prereq. HSL 1264)

Assessment, diagnostic, and prescriptive procedures in special-needs physical education programs. Emphasis is on modification techniques and integration of programming in accordance with legislative guidelines. Practicum experiences in special-needs settings are included.

HSL 1620 Comparative Physical Education 3 Q.H.
(Prereq. HSL 1257 or ED 1312)

Analysis of systems of physical education and sport in selected countries and their interrelations with the larger cultural framework.

HSL 1621 Dance in Cultural Perspective 4 Q.H.

A survey of dance from ancient times to 1900 with the focus on the evolution of dance as a theatre art.

HSL 1622 Supervised Field Experience 12 Q.H.
(Prereq. Senior status in major or permission of instructor)

Course offers assignment in a field setting related to the student's area of concentration within the curriculum, including observation and performance of professionally related skills under the guidance of a cooperating field professional and a college supervisor. To be taken by physical education majors who are not in a teacher certification program.

HSL 1623 Supervised Student Teaching (Practicum) 12 Q.H.

Course provides a minimum of at least 300 clock hours in an approved school, with clear instructional responsibilities for at least half of the time and full teaching responsibilities for a substantial period of time under the guidance of a certified cooperating teacher and college supervisor. The assignment must be at the level of teacher certification sought (K-9 or 5-12) and include coaching and/or intramural organization and supervision, evaluation conferences, and seminars. Students can prepare themselves for Certificate No. 30, Teacher of Physical Education, as granted by the Commonwealth of Massachusetts.†

HSL 1624 Student Athletic Training Internship (Permission of instructor) 6 Q.H.

This experience will give the senior student an opportunity to gain additional field experience and responsibility in athletic training at either a high school, college, or professional setting. It will fulfill the clinical internship requirement for graduation and will be in conjunction with any other senior year experience required by the specific majors.

HSL 1625 Senior Seminar 4 Q.H.

(Prereq. Permission of instructor)

Designed for senior students to discuss pertinent new topics and concepts in sports medicine.

HSL 1626 Therapeutic Reconditioning for Athletic Training 4 Q.H.

(Prereq. HSL 1627)

Principles and objectives inherent in the rehabilitation process of athletic injuries. Basic rehabilitation fundamentals, as well as specific conditioning and reconditioning techniques utilized will be discussed. The student will be exposed to the different types of exercise, as well as the different rehabilitative equipment used in a rehabilitation program. Laboratory experiences in the application of exercise programs and use of equipment will be provided.

HSL 1627 Therapeutic Modalities for Athletic Training 4 Q.H.

(Prereq. HSL 1605)

Physical agents used in athletic training are presented with regards to their physiological effects, where in the healing process they may be used, and all indications and contraindications for use. Laboratory experiences in application of those physical agents will be utilized.

HSL 1630 Aspects of Dance 3 Q.H.

An introduction to dance forms, functions, and styles. Analysis of dance as an art and an overview of dance professions. Lectures, lab, and attendance at performances.

HSL 1632 Dance in the Twentieth Century 4 Q.H.
(Prereq. HSL 1621)

A survey of dance in the twentieth century. The focus of the course is on the emergence and development of modern dance and the impact of twentieth-century choreographers upon the classical ballet tradition. Slides and films will be used to illustrate the choreographic innovations of artists such as Martha Graham, Alwin Nikolais, Twyla Tharp, Fokine, Balanchine, Bejart.

HSL 1634 Laban Movement Analysis 2 Q.H.

Introduction to Laban's qualitative system of movement description and behavior. Emphasis is on the study of effort, shape, and space harmony.

HSL 1863 TAC - Special Problems 2 Q.H.

(Prereq. Permission of instructor)

Designed as directed study in analysis and coaching of a sport or activity not offered by the department or in special scheduling situations.

HSL 1866 Special Problems 4 Q.H.

(Prereq. Permission of instructor)

The course focuses on independent investigation in an area of each student's interests. The investigation will be supervised by an appointed faculty member and will culminate in a formal written report.†

†Teacher certification requirements available in 3 Dockser Hall.

Physical Therapy

PTH 1114 Introduction to Physical Therapy I

2 Q.H.

The course provides orientation to the field of physical therapy and its role in the health professions; theory and practice in applied body mechanics and basic procedures related to patient management.

PTH 1115 Introduction to Physical Therapy II

2 Q.H.

The course provides practice in the preparation of patients and equipment for various treatment procedures. Theory demonstration and practice in heat, light, and hydrotherapy.

PTH 1310 Clinical Gross Anatomy

6 Q.H.*

(Prereq. BIO 1254 and BIO 1255)

The course regionally covers the structure and function of the human body, with particular emphasis on the skeletal, muscular, nervous, and vascular components of each region. It involves lectures, cadaver prosection, osteology laboratories, and surface anatomy palpation to investigate basic human anatomy and the clinical applications of anatomy.

PTH 1315 Physiology for Physical Therapists

(Prereq. BIO 1254, BIO 1255, and PTH 1115) 5 Q.H.

The course covers neuromuscular, cardiovascular, and respiratory physiology applied to physical therapy.

PTH 1320 Physical Therapy I

2 Q.H.

(Prereq. BIO 1255, PTH 1115, and BIO 1254)

Course offers theory, demonstrations, and practice in massage integrated with other treatment procedures; and anatomical and physiological theory and principles. Problem-solving and case analyses are utilized.

PTH 1325 Clinical Medicine I

4 Q.H.

(Prereq. BIO 1254 and BIO 1255)

The course covers general medicine, laboratory medicine, and pathology as related to conditions commonly treated by physical therapists.

PTH 1330 Clinical Kinesiology

5 Q.H.*

(Prereq. PTH 1310 and PTH 1315)

The course involves the study of normal movement through analysis of muscle and joint function. Clinical applications also given for pathological movement.

PTH 1335 Physical Therapy II

3 Q.H.

(Prereq. PTH 1310, PTH 1315, and PTH 1320)

The course covers evaluation procedures: theory, demonstration, practice, and planning.

PTH 1340 Physical Therapy III

4 Q.H.

(Prereq. PTH 1114, PTH 1115, PTH 1310, PTH 1315, PTH 1320)

This course covers basic therapeutic exercise: theory, demonstration practice, and planning.

PTH 1345 Clinical Medicine II

3 Q.H.

(Prereq. PTH 1310, PTH 1315, and PTH 1325)

Orthopedic conditions and their medical, surgical, and physical therapy treatment.

PTH 1352 Psychosocial Aspects of Illness 3 Q.H.

(Prereq. Satisfactory attainment in all prior professional courses)

The course examines interpersonal relationships among patients, families, health professionals, and society, with reference to the impact of and reaction to illness.

PTH 1355 Physical Therapy IV

3 Q.H.

(Prereq. PTH 1315, PTH 1330, PTH 1335, PTH 1340, and PTH 1345)

Course covers theory, demonstration, and practice in prosthetics, orthotics, and advanced functional training of spinal-cord-injured patients.

PTH 1360 Physical Therapy V

4 Q.H.

(Prereq. Satisfactory attainment in all prior professional courses)

Theoretical basis and clinical application of the neurophysiological approaches to treatment: Brunnstrom, Rood, and proprioceptive neuromuscular facilitation techniques.

PTH 1366 Neuroanatomy

5 Q.H.*

(Prereq. PTH 1340)

Morphology and function of the human nervous system. Abnormalities of structure and function of the nervous system. Lecture and laboratory.

PTH 1370 Clinical Seminar

2 Q.H.

(Prereq. Satisfactory attainment in all prior professional courses)

Selected topics related to clinical aspects in physical therapy. Interpersonal relationships, ethics, teaching-learning process, communication, group dynamics, medical-legal issues, sociocultural/socioeconomic considerations, and clinical education information.

PTH 1375 Physical Therapy VII

2 Q.H.

(Prereq. PTH 1335, PTH 1345, and PTH 1365)

The course covers theory, demonstration, and practice in electrical testing and treatment procedures.

PTH 1380 Supervised Clinical Education I

5 Q.H.

(Prereq. Satisfactory attainment in all prior professional courses)

An introduction to clinical experience providing the student with opportunities to practice various skills in the evaluation and treatment of patients under supervision. Five weeks during Quarter 9 of the junior year in Massachusetts.

PTH 1385 Clinical Medicine III

3 Q.H.

(Prereq. Satisfactory attainment in all prior professional courses)

The course focus is the pediatric and neurologic aspects of physical therapy practice, including review of symptoms and conditions and therapeutic intervention.

*Including lab.

PTH 1390 Physical Therapy VI **3 Q.H.**
(Prereq. PTH 1315, PTH 1330, PTH 1335, and PTH 1340)

Respiratory physical therapy; theory, demonstration, and practice in the management of medical and surgical chest conditions. Introduction to respiratory mechanical equipment and cardiopulmonary resuscitation.

PTH 1395 Physical Therapy V (PTH 1360 continued) **1 Q.H.**

(Prereq. PTH 1330, PTH 1335, PTH 1340, and PTH 1345)

Topics include neurodevelopmental treatment, neurophysiological theory, and clinical application of facilitation and inhibition techniques to enhance motor control as advocated by the Bobaths.

PTH 1400 Administration **4 Q.H.**
(Prereq. PTH 1380)

Concepts in administration and management applied to physical therapy. (Seminar and discussion groups.)

PTH 1405 Research for Physical Therapy **4 Q.H.**
(Prereq. Satisfactory attainment in all prior professional courses)

The course covers introduction to research design, basic statistics, analysis of scientific and medical literature, and preparation of an independent research proposal.

PTH 1411 Physical Therapy VIII **4 Q.H.**
(Prereq. Satisfactory attainment in all prior professional courses)

The course incorporates analysis and comparison of methods of physical therapy evaluation and treatment, with an emphasis on therapeutic exercise, and treatment planning for various problems with emphasis on rationale and selection of treatment alternatives. Case study format and case simulations are used. The course meets for three lecture hours. The third is in seminar format with small group discussions.

PTH 1415 Supervised Clinical Education II **0 Q.H.**
(Prereq. Satisfactory attainment in all prior professional courses)

Advanced clinical education providing the student with further opportunities to practice various phases of physical therapy under supervision in preparation for assuming the role of a qualified physical therapist. Assignments in Massachusetts and other states. Twelve weeks during senior year. Required for graduation from the physical therapy program.

PTH 1420 Physical Therapy in the Health Care System **3 Q.H.**

(Prereq. PTH 1370 and PTH 1380)

This course examines major issues impacting the delivery of health care. Emphasis is on the role of the physical therapist as a member of the health team. Class discussion and seminar.

PTH 1426 Functional Assessment of the Elderly Client **3 Q.H.**

(Prereq. PTH 1370 and PTH 1380)

The interaction of psychological, social and physiological factors and their effect on the potential for function of the elderly client are discussed in this course. Assessment instruments will be studied and designed.

PTH 1450 Investigative Studies **6 Q.H.**
(Prereq. Satisfactory attainment in all prior professional courses)

The course covers selected modules related to current practice in physical therapy; completion of research project on a volitional basis.

PTH 1800 Directed Study **2 Q.H.**
(Prereq. Permission of Instructor, Chairperson, and Dean)

This experience is provided for the student whose unique academic needs or interests cannot be adequately satisfied in the basic, entry-level curriculum of the Department of Physical Therapy.

Speech-Language Pathology and Audiology

SLA 1100 Basic Manual Communication Systems **4 Q.H.**

Course focuses on the use of manual communication systems in deaf education (Manual English, SEE, and Signed English). Discussions will cover the goals and assumptions underlying these systems, their relation to American Sign Language and English, and the application of these systems in educational and clinical settings. Instruction is provided in introductory level English Sign Language.

SLA 1101 Introduction to Speech and Hearing **4 Q.H.**

Course offers an overview of disorders of speech and hearing and their treatment, and a review of normal speech and hearing development. Clinical

observations of persons with speech, language, and hearing disorders are required.

SLA 1200 Hearing Science **4 Q.H.**
(Prereq. SLA 1101)

Basic concepts related to the physics of sound are presented, followed by an in-depth study of the anatomy and physiology of the normal hearing mechanism. In addition, basic principles of psychophysics of audition are discussed.

SLA 1201 Anatomy and Physiology of Vocal Mechanisms **4 Q.H.**

(Prereq. SLA 1101)

Course offers an in-depth study of the static structure, musculature, and physiology of the speech

mechanism. Current research in speech physiology is emphasized.

SLA 1300 Developmental Semantics and Syntax

(Prereq. SLA 1101) **4 Q.H.**

Course provides an analysis of the emerging semantic and syntactical aspects of language in normal and atypical children, with emphasis on discussion of current theory and research in language acquisition. Clinical observations of children with normal and atypical language patterns are required.

SLA 1301 Phonetics and Developmental Phonology

(Prereq. SLA 1101 and SLA 1201) **4 Q.H.**

Course offers a basic training in auditory recognition and symbolization of phonemes and allophones in major American dialects. Static and dynamic articulatory descriptions are stressed. Course also includes a review of the developmental sequence of phonemic acquisition.

SLA 1302 Phonemic Disorders **4 Q.H.**

(Prereq. SLA 1201, SLA 1300, and SLA 1301)

Course provides a practical and theoretical examination of the phonemic disorders and their etiology; diagnostic tools for evaluation and methods of treatment. Clinical observations of persons with phonemic disorders are required.

SLA 1303 Introduction to Audiology **4 Q.H.**

(Prereq. SLA 1200)

Course focuses on the basic techniques of audiometric testing and hearing conservation, including a review of basic hearing sciences and a pre-practicum and lab experience in hearing testing.

SLA 1400 Speech Science **4 Q.H.**

(Prereq. SLA 1101 and SLA 1200)

Course offers an examination of the basic sciences involved in speech and audition, including in-depth study of the analysis of sound and the acoustic composition of speech. Emphasis is placed on a review of current theory and research in speech reception, perception, and production.

SLA 1401 Fluency Disorders **4 Q.H.**

(Prereq. SLA 1201)

Course offers a comprehensive study of the various theories and symptomatology of stuttering from the earliest historical references through the nineteenth and twentieth centuries. Clinical observations are required.

SLA 1402 Diagnostic Techniques

4 Q.H.

(Prereq. SLA 1300, SLA 1301, SLA 1302)

Course offers a presentation and review of diagnostic tests and procedures in speech-language pathology. Emphasis is on the parent interview; the oral examination; and the appraisal of phonemic, phonatory, language, fluency, and auditory disorders. Observations of diagnostic evaluations are required.

SLA 1403 Orientation to Clinical Practices **4 Q.H.**

(Prereq. Senior status)

This is a pre-practicum course designed to introduce students to the policies of ASHA; to offer exposure to related health professions; to discuss the influence of state and federal legislation upon the delivery of speech-language and hearing services; to examine the role of the clinical supervisor; and to practice writing clinical goals and lesson plans.

SLA 1404 Introduction to Psychoacoustics **4 Q.H.**

(Prereq. SLA 1400 or SLA 1200 or SLA 1303)

This course explores the physics of sound and the psychological aspects of hearing with an emphasis on clinical applications. Topics include threshold, loudness, pitch, adaption, and auditory localization. The prerequisite may be waived only with permission of the instructor.

SLA 1500 Psychoacoustics Laboratory **4 Q.H.**

(Prereq. SLA 1404)

This course provides practical application of topics discussed in SLA 1404. Students are required to re-create some of the most interesting of the classical psychoacoustics experiments. The prerequisite may be waived only with permission of the instructor.

SLA 1501 Clinical Practice and Seminar **4 Q.H.**

(Prereq. SLA 1403)

Course provides full-time participation in a University-arranged and supervised school program designed to provide the student with initial involvement in the clinician-client relationship and an opportunity to demonstrate, evaluate, and develop clinical skills.

SLA 1800 Directed Study

4 Q.H.

(Prereq. Permission of instructor)

This course is provided for the student whose unique academic needs or interests cannot adequately be satisfied in any of the scheduled courses of the department. Preparation: Approval of the supervising faculty member, chairperson, and the Dean's Office of the Boston-Bouvé College of Human Development Professions. Approval forms must be submitted to the Dean's Office during the quarter prior to registration for the Directed Study.

Pharmacy

PAH 1135 Professional Dynamics in the Health Care Delivery System 4 Q.H.

An examination of the evolution of the American health care delivery system with emphasis on current aspects of how health care is delivered, how it is financed, where it is delivered, and who delivers it. Present and future influences in health will be discussed. Introduction to unique and collective health professional roles and responsibilities, humanistic/behavioral dimensions of health care, professional organizations, and professionalism.

PAH 1202 Anatomy-Physiology I 5 Q.H.*

(Prereq. CHM 1122 and BIO 1107)

This course covers structure and function of cells, tissues, and organs, including the muscular, immune, and nervous systems. The laboratory includes human skeletal anatomy and cat dissection. Both the lecture and laboratory sections of this course are oriented to students in the health professions.

PAH 1204 Anatomy-Physiology II 5 Q.H.*

(Prereq. PAH 1202 or permission of instructor)

The course covers structure and function of the various life-supportive systems not covered in the first quarter: cardiovascular, endocrine, gastrointestinal, pulmonary systems. Laboratory is devoted to basic principles involved in understanding the functioning life systems and cell function.

PAH 1280 Biochemistry 4 Q.H.

This introductory course in biochemistry deals with the structures, functions, and metabolism of amino acids, proteins, carbohydrates, lipids, and nucleic acids. Mechanisms of enzyme reactions, enzyme kinetics, vitamins, biological oxidation reduction reactions, and bioenergetics are discussed, as well as various inborn errors of metabolism.

PCL 1101 Drugs — Their Uses and Actions 4 Q.H.

Topics include background, classification, dose responses, untoward side effects, uses, and commercial preparations of a broad series of drugs. (Not open to pharmacy, respiratory therapy, or nursing majors).

PCL 1301 Basic Pharmacology 3 Q.H.

(Prereq. Permission of instructor)

This course provides students an opportunity to learn the classification, mechanisms of action, and uses of a broad spectrum of therapeutic agents. Dose response and untoward side effects are emphasized.

PCL 1305 Pharmacodynamics 3 Q.H.

(Prereq. BIO 1120, BIO 1255, CHM 1111, and CHM 1112)

This course provides introductory expositions of pharmacologic principles, with the pharmacotherapeutics of drug groups and individual drug substances of particular importance in treatment and diagnosis of disease.

PCL 1309 Pharmacology for the Respiratory Care Practitioner 4 Q.H.

The course provides an orientation to pharmacology, including the scope of pharmacology; definitions; drug standards; drug legislation; names, sources, and active constituents; and pharmaceutical preparations of drugs relating to the respiratory-care practitioner.

PCL 1410 Introduction to Pathology 4 Q.H.

(Prereq. PAH 1202 and PAH 1204)

The course focuses on basic concepts of pathology for the pharmacy, toxicology, and respiratory therapy majors, with emphasis on disease processes and alterations of normal biochemical mechanisms.

PCL 1420 Pharmacology/Medicinal Chemistry II 6 Q.H.

(Prereq. PMC 1418)

Continuation of PMC 1418. An interdisciplinary approach to the fundamental chemical and pharmacological principles of drug action. A discussion of structure-activity relationship, absorption characteristics, metabolic fate, pharmacodynamics, and therapeutic application, principally of those drugs acting at autonomic and cardiomuscular sites.

PCL 1422 Pharmacology/Medicinal Chemistry III 6 Q.H.

(Prereq. PCL 1420)

A continuation of PCL 1420 with special emphasis on drugs affecting the hematopoietic systems, the kidneys, and the endocrine and reproductive systems.

PCL 1450 Pharmacology Laboratory I 1 Q.H.*

(Prereq. PMC 1418)

Qualitative effects of drugs are systematically observed. Characteristic signs and symptoms related to mechanisms of action of drugs are compared and identified using the "Hippocratic Screen" method.

PCL 1452 Pharmacology Laboratory II 1 Q.H.*

(Prereq. PMC 1418)

Quantitative aspects of drug-dose response are observed. Methods of measurement of response and the pharmacodynamic, pharmacokinetic, and physiological factors affecting drug-dose response and their measurement are covered.

PCL 1505 Drug Interactions 4 Q.H.

The basic chemical-physical, pharmacodynamics, pharmacokinetic, physiological, and pathological factors associated with drug interactions are studied. The roles of these factors in the efficacy and safety of therapeutic drug regimens involving major pharmacological classes of drugs are discussed.

PCL 1801 Special Research Project (Pharmacology) (each) 4 Q.H.*

(Prereq. Permission of instructor and program director)

This is a course of directed study or research in pharmacology/toxicology wherein the student may undertake in-depth investigation of an area of specialized interest.

*Lab fee required.

PCL 1802 Special Research Project**(Pharmacology)****4 Q.H.***

(Prereq. Permission of instructor and program director)
This is a course of directed study or research in pharmacology/toxicology wherein the student may undertake in-depth investigation of an area of specialized interest.

PCL 1803 Special Research Project**(Pharmacology)****4 Q.H.***

(Prereq. Permission of instructor and program director)
This is a course of directed study or research in pharmacology/toxicology wherein the student may undertake in-depth investigation of an area of specialized interest.

PCT 1230 Pharmaceutical Calculations**3 Q.H.**

The course provides an introduction to the general scope of pharmacy. Emphasis is on systems of measurement and basic arithmetic calculations as they relate to the practice of pharmacy. Additionally, the student is introduced to statistical analysis and essential mathematical concepts required for subsequent courses in pharmaceuticals.

PCT 1310 Pharmaceuticals Laboratory I**1 Q.H.**

(Prereq. PCT 1340 or concurrent enrollment)

The course focuses on the physicochemical principles of pharmaceutical preparations and their relationship to quality control and biopharmaceutics and pharmacokinetics.

PCT 1320 Pharmaceuticals Laboratory**2 Q.H.**

(Prereq. PCT 1350 or concurrent enrollment)

The course focuses on the application of the fundamental principles and techniques of pharmaceuticals to the laboratory preparation and use of various pharmaceutical drug products.

PCT 1340 Pharmaceuticals I**4 Q.H.**

(Prereq. MTH 1108, PHY 1203, CHM 1265, and PCT 1230)

The course focuses on the study of physiochemical theories and principles and their application to pharmaceutical systems. Topics include thermodynamics, ionic equilibria, solubility, complexation, interfacial phenomena, rheology, coarse dispersions, diffusion, membrane transport, and kinetics.

PCT 1350 Pharmaceuticals II**5 Q.H.**

(Prereq. PCT 1340)

The course focuses on the application of the fundamental principles of physical pharmacy to the formulation of pharmaceutical preparations. Emphasis is on pharmaceutical dosage forms, including both industrial formulation and extemporaneous compounding.

PCT 1440 Biopharmaceutics/Pharmacokinetics

(Prereq. PAH 1204)

4 Q.H.

A class designed to acquaint students with biopharmaceutics and basic pharmacokinetics. Topics include dissolution, disintegration, general concept of one- and two-compartment models; linear and non-linear pharmacokinetics; drug kinetics after intravenous, intramuscular, or oral administration; practical

methods of one-compartment model utilizing urinary data; bioavailability; multiple-dosing kinetics; and general approaches to dosage adjustment in disease states.

PCT 1441 Pharmacokinetic Principles in Drug Therapy**4 Q.H.**

(Prereq. PCT 1440)

The course covers the monitoring, development, and modification of drug dosage regimens, and the pharmacokinetic factors influencing the selection of these regimens, for the various therapeutic categories of drugs.

PCT 1801 Pharmaceuticals Special Research Project**4 Q.H.***

(Prereq. Permission of instructor(s) and program director)

A course of directed study or research in one of the pharmaceutical sciences, wherein the student may undertake in-depth investigation of an area of specialized interest.

PCT 1802 Pharmaceuticals Special Research Projects (each)**4 Q.H.***

(Prereq. Permission of instructor(s) and program director)

A course of directed study or research in pharmaceuticals, wherein the student may undertake in-depth investigation of an area of specialized interest.

PCT 1803 Pharmaceuticals Special Research Project**4 Q.H.***

(Prereq. Permission of instructor(s) and program director)

A course of directed study or research in pharmaceuticals, wherein the student may undertake in-depth investigation of an area of specialized interest.

PHP 1301 Pharmaceutical Jurisprudence**4 Q.H.**

(Prereq. Permission of instructor)

The course offers a comprehensive analysis and interpretation of laws relating to the practice of pharmacy. Federal and state food and drug laws, narcotics laws, Medicare and Medicaid regulations, and state pharmacy laws are discussed.

PHP 1302 Pharmacy Administration I**4 Q.H.**

(Prereq. Permission of instructor)

The course covers socioeconomic aspects of pharmacy: the government's relation to the pharmaceutical industry, trends in contemporary practice, third-party payment plans, macroeconomic impact on the industry, and the interaction of current concepts in pharmacy.

PHP 1303 Interpersonal Skills for Health Professionals**4 Q.H.**

The course is designed to apply the skills of interpersonal communication to situations encountered in various health care settings. Students are provided with an opportunity to learn to integrate specific technical competence with serious concern for personal, social, and cultural factors in illness and health care.

* Lab fee required.

Through the use of medical sociology literature, audio-visual materials, case analyses, and personal reflection on actual patient encounters, the students are provided with an opportunity to improve interpersonal communication skills, and to help increase their understanding of practitioner-patient relationships, patient's needs and responses in illness and treatment, and professional behavior in practice settings.

PHP 1304 Social Pharmacology 4 Q.H.

(Prereq. PHP 1303 or consent of instructor)

An introductory study of drug-taking experiences and behaviors. The course provides an overview of theories and research findings which describe the relationships between personal, social, and cultural factors and drug taking, while comparing and contrasting the social approach with the pharmacological paradigm of drug effects and the medical model of drug use. Through the use of readings, audiovisual materials, and descriptions of personal experiences, the student will examine the varieties of drug experiences, patterns of and reasons for drug taking of all types, and strategies for preventing drug use problems.

PHP 1305 Hospital Pharmacy Management 4 Q.H.

(Prereq. Senior standing or permission of instructor)

The factors involved in the operations and management of a hospital pharmacy within the context of the total hospital structure.

PHP 1306 Community Pharmacy Management 4 Q.H.

(Prereq. Senior standing or permission of instructor)

The course focuses on the management requirements for establishing a community pharmacy. A comparative analysis of the prevailing types of organizations, locations, leases, business organization, staffing, plant layout and design, and financial factors.

PHP 1307 Principles of Management 4 Q.H.

(Prereq. Permission of instructor)

The course covers the fundamentals of business organization with emphasis on the qualitative and legal aspects of management. This course includes an analysis of the marketing structure of the drug trade, forces of organizations, personnel management, and decision-making theory using nonqualitative data.

PHP 1308 Financial Management 4 Q.H.

(Prereq. Permission of instructor)

The course examines the fundamentals of accounting and finance with emphasis on their application to retailing and community pharmacy management. Accounting systems, analysis of financial statements, budgets, cash flow, taxation, and finance are covered in depth.

PHP 1309 Seminar in Community Pharmacy Management 4 Q.H.

(Prereq. Permission of instructor)

A discussion course on all phases of community pharmacy operations with extensive utilization of the case method of instruction.

PHP 1401 Drug Information and Evaluation 3 Q.H.

(Prereq. Fifth-year standing or permission of instructor)

An introduction to the principles and practice of drug information. Material covered includes the levels of practice, the availability of therapeutic reference sources, the use of abstracting and indexing systems, how to respond to drug information questions, and basic statistical data required to help understand the medical and pharmaceutical literature.

PHP 1402 Parapharmaceuticals 2 Q.H.

Course focuses on the nature and application of various surgical devices, appliances, bandages, and hospital and sickroom supplies in patient care.

PHP 1501 Pharmacy Externship 4 Q.H.

(Prereq. Fifth-year standing)

A 520-hour (thirteen weeks x 40 hours/week) structured practicum in community pharmacy. The experience includes applied aspects of community pharmacy management; medication dispensing; and patient-oriented services such as prescription and nonprescription medication, consultation, and patient-profile monitoring.

PHP 1502 Clinical Pharmacy Clerkship 15 Q.H.

(Prereq. PHP 1602)

Students are assigned to a clinical site for five full days per week to observe patient response to medication and to evaluate and advise on all factors that may modify efficacy, safety, and economy of therapy. Campus seminar involves student presentations on current therapeutic topic.

PHP 1503 Professional Practice Laboratory 1 Q.H.

(Prereq. Senior standing or permission of instructor)

Compounding and dispensing medications. Emphasis is on patient counseling techniques and monitoring for appropriateness of therapy. Prescription compounding involves screening for incompatibilities. Also includes an introduction to the preparation of intravenous solutions.

PHP 1601 Nonprescription Medication 4 Q.H.

A course designed to provide an overall view of the various types of "over-the-counter" medications. The directions and precautions for proper use of these preparations are discussed.

PHP 1602 Pharmacotherapeutics 5 Q.H.

(Prereq. PCL 1422 and PCL 1410)

The course covers discussion of common clinical laboratory tests, major disease states, and drug therapy for these conditions.

PHP 1603 Selected Topics in Clinical Pharmacy I 4 Q.H.

(Prereq. PHP 1602 and permission of instructor)

Designed to help students increase their understanding of selected diseases. Pathophysiology and diagnosis of the illness as well as drug therapy and its relation to patient compliance and education. Provides greater depth than existing clinical pharmacy courses.

PHP 1604 Selected Topics in Clinical Pharmacy II **4 Q.H.**

(Prereq. PHP 1602 and permission of instructor)
This is a course designed to help increase the student's knowledge of selected disease entities. Topics will include pathophysiology and diagnosis of the illness as well as drug therapy and its relation to patient compliance and education. Provides greater depth than existing clinical pharmacy courses.

PHP 1801 Special Research Project **4 Q.H.**
(Clinical Pharmacy)

(Prereq. Permission of instructor and program director)
This is a course of directed study or research in clinical pharmacy, wherein the student may undertake in-depth investigation of an area of specialized interest.

PHP 1802 Special Research Project **4 Q.H.**
(Clinical Pharmacy)

(Prereq. Permission of instructor and program director)
This is a course of directed study or research in clinical pharmacy, wherein the student may undertake in-depth investigation of an area of specialized interest.

PHP 1803 Special Research Project **4 Q.H.**
(Pharmacy Administration)

(Prereq. Permission of instructor and program director)
This is a course of directed study or research in pharmacy administration, wherein the student may undertake in-depth investigation of an area of specialized interest.

PHP 1804 Special Research Project* **4 Q.H.**
(Pharmacy Administration)

(Prereq. Permission of instructor and program director)
This is a course of directed study or research in pharmacy administration, wherein the student may undertake in-depth investigation of an area of specialized interest.

PMC 1418 Medicinal Chemistry/Pharmacology I **4 Q.H.**

(Prereq. BIO 1107, CHM 1265, PAH 1202, PAH 1204)
Course offers an introduction to the principles of pharmacology and medicinal chemistry applied to the discovery of drugs and their therapeutic utility in man. The course provides greater detailed discussion of drugs affecting the central nervous system, including therapeutic indications, adverse reactions, and mechanisms of action.

PMC 1440 Medicine Out of the Earth **4 Q.H.**
(Prereq. CHM 1265, BIO 1106 and BIO 1107)

This course focuses on the historical use of plants as drugs and their role in the development of modern medicinal and pharmaceutical preparations. Introduction to a variety of modern approaches to the discovery of new drugs is included, with reference to current research programs employing them. Films, slides, and demonstrations illustrate the techniques involved.

PMC 1801 Special Research Project (Medicinal Chemistry) **4 Q.H.***

(Prereq. Permission of instructor and program director)
Courses offer directed study or research in one of the medicinal chemistry areas. Students may undertake in-depth investigation of an area of specialized interest including literature search and report.

PMC 1802 Special Research Project (Medicinal Chemistry) **4 Q.H.***

(Prereq. Permission of instructor and program director)
Course offers directed study or research in one of the medicinal chemistry areas. Students may undertake in-depth investigation of an area of specialized interest including literature search and report.

PMC 1803 Special Research Project (Medicinal Chemistry) **4 Q.H.***

(Prereq. Permission of instructor and program director)
Course offers directed study or research in one of the medicinal chemistry areas. Students may undertake in-depth investigation of an area of specialized interest including literature search and report.

Health Professions

General Courses

HRA 1310 Hospital Law **2 Q.H.**

This course offers an analysis of the legal principles relating to medical and paramedical practice within a hospital environment. The common law and statutory rights of the hospital, practitioner, and patient are discussed.

HRA 1320 Language of Medicine **4 Q.H.**

The course offers a study of the language of medicine, including prefixes, suffixes, roots, abbreviations, and disease, operative, and drug terms. Also included

are terms related to all area specialties. The terms are studied as they relate to a specific system of the body.

HRA 1321 Basic Medical Terminology **2 Q.H.**

This course provides a study of the language of medicine and health care. Emphasis is on disease, procedures, and symptomatic terms and their definitions, word construction, analysis, and application. The student is provided an opportunity to acquire working knowledge of medical terminology.

* Lab fee required.

HRA 1330 Foundations of Medical Science I**3 Q.H.**

The course covers major disease problems in our society and modes of treatment. Included are discussion of organized care; diagnosis and treatment; consideration of reproduction, birth, and pediatrics.

HRA 1340 Foundations of Medical Science II

(Prereq. HRA 1330)

3 Q.H.

A continuation of 1330 covering heart, cancer, stroke, blood and lymphatic diseases, accidents, and musculoskeletal, respiratory, and gastro-intestinal diseases.

Toxicology

TOX 1100 Toxicology Orientation**1 Q.H.**

An introduction to toxicology as it relates to clinical, environmental, and regulatory concerns. Includes research principles, clinical toxicology of drugs, water and air pollution concerns. An overview of the field for toxicology and science majors.

TOX 1131 Laboratory Animal Science**4 Q.H.**

(Prereq. BIO 1260, PAH 1204, and/or permission of instructor)

A comprehensive examination of the role of the laboratory animal in biomedical research. Includes historical and legislative aspects of animal research, basic anatomy and physiology, genetics and nutrition, physiological parameters, animal health and disease, and experimental protocols.

TOX 1300 Clinical Toxicology**4 Q.H.**

(Prereq. PMC 1418)

The course focuses on principles of toxicology, including FDA requirements relating to new drugs, environmental and other factors affecting the toxicity of therapeutic agents, mechanisms of toxicity, and clinical applications.

TOX 1301 Fundamental Principles of Systemic Toxicology**4 Q.H.**

(Prereq. PMC 1418)

Course offers a presentation of the principles of toxicology with reference to mode of toxic damage at the cellular and systemic levels. The course includes a discussion of the basic concepts used in evaluation of toxicity and the basic mechanisms through which toxic drug interactions are induced.

TOX 1302 Chemical and Analytical Toxicology

(Prereq. PMC 1418 and TOX 1301)

4 Q.H.

Course offers a presentation of the structure activity approach to toxicology of chemical classes of compounds. The methodology employed to evaluate the safety of chemicals is presented.

TOX 1321 Biochemical Toxicology**3 Q.H.***

(Prereq. TOX 1300, TOX 1301, or TOX 1302)

The objective of this course is 1) to introduce the student to investigational methods for assessing toxicity, 2) to develop the student's ability to analyze and interpret data generated in the lab and in the literature, and 3) to develop technical report writing skills.

Rodents are used as a model for toxic insult. Hepatotoxicity, neurotoxicity, teratogenicity, and other toxic manifestations are examined at the whole animal, whole tissue, and biochemical level.

TOX 1801 Special Topics**4 Q.H.**

Selected areas of toxicology will be explored. These may include research, seminars, comparative analysis of data, or faculty-guided programs.

TOX 1802 Special Topics**4 Q.H.**

Selected areas of toxicology will be explored. These may include research, seminars, comparative analysis of data, or faculty-guided programs.

TOX 1803 Special Topics**4 Q.H.**

Selected areas of toxicology will be explored. These may include research, seminars, comparative analysis of data, or faculty-guided programs.

Medical Laboratory Science

The Medical Laboratory professional courses are taught by University faculty, together with supportive clinical faculty.

MLS 1101 Medical Laboratory Science**Orientation I****1 Q.H.**

The course focuses on the history and development of the medical laboratory science profession and includes an introduction to medical terminology.

MLS 1102 Medical Laboratory Science**Orientation II****1 Q.H.**

Medical Laboratory Science Orientation II is a continuation of Medical Laboratory Science Orientation I

with the addition of a review of mathematics and metric unit calculations.

MLS 1109 Foundations of Clinical Laboratory Science**4 Q.H.**

(Prereq. Admission to physician assistant program or permission by instructor)

Basic laboratory methods employed in primary care,

* Lab fee required.

including urinalysis, gram staining, hematocrit, hemoglobin, sedimentation rate, white cell count, and differential.

MLS 1111 Basic Medical Laboratory Science Urinalysis 3 Q.H.*

(Prereq. BIO 1107 and CHM 1122)

Introductory course in basic medical laboratory science covers principles and theories of renal physiology, with laboratory emphasis on techniques for chemical and microscopic detection of normal and abnormal constituents.

MLS 1121 Basic MLS Hematology I 3 Q.H.*

(Prereq. BIO 1107 and CHM 1122)

This introductory course in basic hematology procedures and principles covers hemoglobin, hematocrit, white and red blood cell counts, and white cell differentiation.

MLS 1122 Basic MLS Hematology II 3 Q.H.*

(Prereq. MLS 1121 or MLS 1321)

The course covers principles and procedures of hematology, with emphasis on hematologic cell maturation and morphology and basic hemostasis.

MLS 1131 Basic MLS Immunohematology—Serology 6 Q.H.*

(Prereq. BIO 1107; CHM 1122)

The first section of the course covers basic principles of immunology, with laboratory emphasis on current immunodiagnostic techniques. The second section covers basic principles of immunohematology and related techniques. Laboratory exercises will emphasize blood-banking techniques.

MLS 1141 Basic MLS Clinical Microbiology 6 Q.H.*

(Prereq. CHM 1122, and BIO 1107)

The course focuses on basic principles and techniques of organism isolation, cultivation, and identification from clinical specimens. Elementary serologic procedures are discussed.

MLS 1151 Basic MLS Clinical Chemistry and Instrumentation 5 Q.H.*

(Prereq. MLS 1111 or MLS 1311, CHM 1221)

The course covers principles of clinical chemistry with application to procedures and techniques. Laboratory emphasis on instrumental analysis of clinical specimens.

MLS 1311 Basic MLS Urinalysis 2 Q.H.*

(Prereq. CHM 1122 and BIO 1107)

Introductory course in basic medical laboratory science. Principles and theories of renal physiology with laboratory emphasis on techniques for chemical and microscopic detection of normal and abnormal urinary tract constituents.

MLS 1321 Basic MLS Hematology I 2 Q.H.*

(Prereq. CHM 1122 and BIO 1107)

Introductory course in basic hematology procedures and principles: hemoglobin, hematocrit, white and red blood cell counts, and white cell differentiation.

MLS 1322 Basic Medical Laboratory Science Hematology II 2 Q.H.*

(Prereq. MLS 1121 or MLS 1321)

Principles and procedures of basic medical laboratory hematology, including basic hemostasis, are covered.

MLS 1323 Advanced Hemostasis Techniques 2 Q.H.*

(Prereq. MLS 1122 or MLS 1322 or permission of instructor)

Lecture/laboratory course in advanced hemostatic techniques. Theory and methodology will be stressed, along with interpretation of laboratory results.

MLS 1324 Histochemistry 2 Q.H.*

(Prereq. MLS 1621 or MLS 4341 or permission of instructor)

The histochemistry of hemic cells and techniques used in diagnosis of hematological disorders are covered.

MLS 1330 Basic MLS Immunohematology 2 Q.H.*

(Prereq. BIO 1107)

Basic principles in immunohematology and related techniques, with particular emphasis on those procedures used in blood banking, are covered.

MLS 1331 Basic MLS Clinical Immunology 3 Q.H.*

(Prereq. BIO 1107 and CHM 1122)

Topics include basic principles of immunology, with laboratory emphasis on immunodiagnostic techniques currently used in clinical laboratory practice.

MLS 1333 Immunohematology 2 Q.H.*

(Prereq. MLS 1131, 1330, 1331)

This course offers advanced studies in antigen-antibody detection and problem solving through immunohematological tests. Discussion of related hematologic disorders and the medical/legal aspects of blood banking is included.

MLS 1341 Basic MLS Clinical Microbiology 4 Q.H.*

(Prereq. BIO 1107 and CHM 1122)

Basic principles and techniques of organism isolation, cultivation, and identification from clinical specimens are covered. Elementary serologic procedures will be discussed.

MLS 1351 Basic MLS Clinical Chemistry and Instrumentation 4 Q.H.*

(Prereq. CHM 1221 and MLS 1111 or MLS 1311)

Laboratory emphasis on instrumental analysis of clinical specimens.

MLS 1412 MLT Special Topics — Applied Microscopy 2 Q.H.

(Prereq. Admission to MLT Clinical Program)

Clinical practicum in applied urinalysis, parasitology, and mycology at an affiliated hospital providing MLT(ASCP) and CLT(NCA)-level instruction.

MLS 1423 MLT Applied Study in Hematology 2 Q.H.

(Prereq. Admission to MLT Clinical Program)

Clinical practicum in hematology and coagulation at

* Lab fee required.

an affiliated hospital providing MLT(ASCP) and CLT(NCA)-level instruction.

MLS 1432 MLT Applied Study in Blood Banking
(Prereq. Admission to MLT Clinical Program) **2 Q.H.**
Clinical practicum in blood banking at an affiliated hospital providing MLT(ASCP) and CLT(NCA)-level instruction.

MLS 1442 MLT Applied Study in Clinical Microbiology **2 Q.H.**
(Prereq. Admission to MLT Clinical Program)
Clinical practicum in microbiology at an affiliated hospital providing MLT(ASCP) and CLT(NCA)-level instruction.

MLS 1452 MLT Applied Study in Clinical Chemistry **2 Q.H.**
(Prereq. Admission to MLT Clinical Program)
Clinical practicum in clinical chemistry at an affiliated hospital providing MLT(ASCP) and CLT(NCA)-level instruction.

MLS 1480 MLT Seminar I **2 Q.H.**
(Prereq. Admission to MLT Clinical Program)
The course offers a basic introduction to correlation of laboratory findings in hematology, blood banking, microbiology, and clinical chemistry, with appropriate referrals of laboratory information in working situation. Basic use of quality control.

MLS 1523 Hematology MT Applied Study **4 Q.H.**
(Prereq. Acceptance to MT Clinical Program)
Clinical practicum in applied hematology at an affiliated hospital medical technology program, which provides for MT(ASCP), CLS(NCA)-level instruction.

MLS 1532 Immunohematology MT Applied Study **3 Q.H.**
(Prereq. Acceptance to MT Clinical Program)
Clinical practicum in applied immunohematology at an affiliated hospital medical technology program, which provides for MT(ASCP), CLS(NCA)-level instruction.

MLS 1544 Clinical Microbiology MT Applied Study
(Prereq. Acceptance to MT Clinical Program) **7 Q.H.**
Clinical practicum in applied microbiology at an affiliated hospital medical technology program, which provides for MT(ASCP), CLS(NCA)-level instruction.

MLS 1552 Clinical Chemistry MT Applied Study
(Prereq. Acceptance to MT Clinical Program) **7 Q.H.**
Clinical practicum in applied clinical chemistry at an affiliated hospital medical technology program, which provides for MT(ASCP), CLS(NCA)-level instruction.

MLS 1621 Advanced Hematology I **3 Q.H.**
(Prereq. MLS 1122 or permission of instructor)
Topics include physiology of blood cells and bone marrow with a review of physiology of blood hemopoiesis; discussions of hematologic results as they relate to normal, anemic, and leukemic conditions.

MLS 1622 Advanced Hematology II – Hemostasis
(Prereq. MLS 1122 or permission of instructor) **2 Q.H.**
Advanced studies in hemostasis with emphasis on

factor identification and problem solving of hemostatic problems.

MLS 1631 Advanced Immunohematology **2 Q.H.**
(Prereq. MLS 1332)

This course offers blood group systems, antibody identification, and advanced immunohematologic principles and procedures. Case studies will be presented.

MLS 1642 Medical Parasitology **3 Q.H.***
(Prereq. MLS 1141)

Laboratory identification of significant human parasites. Life cycles related to mode of infestation, effect on man, and diagnostic form.

MLS 1643 Medical Mycology **3 Q.H.***
(Prereq. MLS 1341 or MLS 1141)

Laboratory identification of clinically significant fungi with a discussion of modes and types of infections.

MLS 1645 Advanced Clinical Microbiology I **2 Q.H.**
(Prereq. MLS 1141 or permission of instructor)

Topics include host and microbial interactions in disease produced by viruses, rickettsia, chlamydia, mycoplasma, mycobacteria, and actinomyces, with discussion of disease states and laboratory diagnostic procedures.

MLS 1646 Advanced Clinical Microbiology II **2 Q.H.**
(Prereq. MLS 1141 or permission of instructor)

Course covers host and microbial interactions in gastrointestinal, genitourinary, and respiratory tract infections; discussion of disease states and laboratory diagnostic procedures.

MLS 1647 Advanced Clinical Microbiology III **2 Q.H.**
(Prereq. MLS 1141 or permission of instructor)

Topics include host and microbial interactions in closed-space infections and in disease produced by staphylococci and anaerobic organisms. Methods for antibiotic susceptibility testing and principles of infectious disease control are also included.

MLS 1651 Advanced Clinical Chemistry I **2 Q.H.**
(Prereq. MLS 1151 or permission of instructor)

Course includes current methodologies and instrumentation used in clinical chemistry to evaluate hormonal conditions and drug level monitoring.

MLS 1652 Advanced Clinical Chemistry II **2 Q.H.**
(Prereq. MLS 1151 or permission of instructor)

Course includes metabolism of and procedures for nucleic acids, amino acids, proteins, lipids, and carbohydrates.

MLS 1653 Advanced Clinical Chemistry III **2 Q.H.**
(Prereq. MLS 1151 or MLS 1351 or permission of instructor)

Course includes a discussion of laboratory procedures used to evaluate acid-base balance, hepatic, renal, and gastrointestinal systems as well as vitamin and trace-metal blood levels.

*Lab fee required.

MLS 1661 Medical Laboratory Science Education
(Prereq. Completion of clinical program) **2 Q.H.**
The course offers a survey of current topics in medical laboratory science education: developing objectives, methods of evaluation and certification, clinical instruction and evaluation, medical laboratory science curricula, and use of media and other methods of instruction.

MLS 1665 Medical Laboratory Management
(Prereq. Completion of clinical program) **2 Q.H.**
The course offers a survey of factors that relate to effective laboratory administration: hospital organizational structure, principles of management and supervision, cost accounting, purchasing, inspection guidelines, legal responsibilities, and personnel relations.

MLS 1680 MLS Special Topics **2 Q.H.**
(Prereq. MLS 1111 through MLS 1151)
Current topics in the clinical laboratory.

MLS 1681 MLS Senior Seminar **2 Q.H.**
The course provides a review of current undergraduate medical laboratory science topics.

MLS 1831 Advanced Immunology **4 Q.H.**
An introduction to current topics in Immunology. Specific areas discussed include the structure and properties of antigens and antibodies and a detailed description of the various cell types involved in immune reactivity. Other topics may include the regulation of the immune response, transplantation, tumor immunology, and autoimmunity.

MLS 1832 Advanced Immunology Laboratory **1 Q.H.**
Students will perform experiments involving antigen preparation, polyclonal and monoclonal antibody production, various *in vitro* assay techniques, and certain aspects of tissue culture designed to measure cell-to-cell reactivity.

MLS 1890 Undergraduate Research **2 Q.H.**
(Prereq. Special permission)
The course examines special problems in laboratory medicine involving individual research under the direction of a faculty member.

MLS 1891 MLS Current Concepts **1 Q.H.**
Topics for this course are determined by recent advances in medical laboratory science.

Health Record Administration

HRA 1100 Orientation to Medical Records I **1 Q.H.**
This introductory seminar focuses on the issues, activities, and opportunities in the medical record profession.

HRA 1410 Health Record Science I **4 Q.H.**
(Prereq. Two years of arts and sciences)
The course offers introduction to health records; history of the medical record and medical record forms. Included are a study of professional medical record administrators and their relation to the health facility, medical staff, and committees in the hospital. Quantitative analysis of medical records.

HRA 1420 Health Record Science II **4 Q.H.**
(Prereq. HRA 1410)
This course covers the numbering, filing, security, and preservation of medical records; principles of law related to patient care and medical records; emphasis on the rules of privileged communications and the release of information to agencies.

HRA 1430 Health Record Science III **4 Q.H.**
(Prereq. HRA 1420)
The course examines basic principles of compiling statistics for hospital and other health institutions. Topics include the preparation of the daily census and discharge analysis; monthly, annual, and special reports; birth and death certificates; principles of standardized nomenclature of diseases and operations and ICD-9-CM; and study of other indexes used in medical record departments.

HRA 1440 Advanced Health Record Science IV **4 Q.H.**
(Prereq. HRA 1430)
This course covers advanced aspects of health/medical record science. Special focus is on the management of record systems in ambulatory, long-term, home care, and psychiatric settings.

HRA 1450 Applied Health Records Directed Practice I **3 Q.H.**
(Prereq. HRA 1430)
Clinical practicum in medical record science in the general hospital.

HRA 1460 Applied Health Records Directed Practice II **2 Q.H.**
(Prereq. HRA 1450)
Clinical practicum in medical record science in specialized health settings.

HRA 1470 Applied Health Records Science III **4 Q.H.**
Clinical practicum in health/medical records management in the health-care facility.

HRA 1480 Clinical Seminar **2 Q.H.**
Designed to integrate the didactic and the clinical experience at an early stage, the course provides a formal means by which students can share clinical developments with each other. It is designed to give them an opportunity to improve their competency in specific areas of medical record practice.

HRA 1510 Management of Health Record Services 1 4 Q.H.

This course focuses on the medical record department within the health care setting. Lines of responsibility and authority, medical staff and administrative organization, hospital department functions and organization are examined, as are fundamental principles and successful practices of office organization. An opportunity is provided for the student to develop the technical skills necessary to develop organization charts, policies, job descriptions, and job procedures.

HRA 1520 Management of Health Record Services 2 4 Q.H.
(Prereq. HRA 1510)

This course focuses on the medical record department within the health care setting. Budget and cost control mechanisms, organized labor and collective bargaining, office environment and layout, and the impact of state and federal regulations on medical record practices are examined. An opportunity is provided for the student to develop the technical skills necessary to plan and analyze budgets, to plan and design office layouts, and to evaluate the impact of regulations on particular medical record applications.

HRA 1530 Management of Health Record Services 3 4 Q.H.
(Prereq. HRA 1520)

This course focuses on the medical record department within the health care setting. Orientation programs; training programs; in-service education; interviewing, hiring, counseling, motivating, and disciplining employees; and communication skills are examined. An opportunity is provided for the student to develop an orientation and training program, and in-service presentation. Role-playing sessions and case studies are used to develop skill in interviewing, hiring, counseling, disciplining, and motivating employees. Emphasis is placed on verbal skills.

HRA 1540 Quality Assurance 4 Q.H.
(Prereq. HRA 1430, HRA 1440; HRA 1320 or permission of instructor)

This course is designed to provide the student with the opportunity to gain knowledge of the issues and problems involved in designing, implementing, and maintaining quality assurance programs for health-care facilities. An opportunity will also be provided for the student to gain the technical skills necessary to carry out all aspects of the audit process, emphasizing the professional's role as facilitator to physicians and other professional staff.

HRA 1560 Seminar in Health Records 2 Q.H.
(Prereq. Senior status)

Case study and discussion are used to integrate the discrete skills and knowledge of the professional curriculum into a meaningful whole by analysis of real and hypothetical problems. Coordination between the seminar and applied medical record science is emphasized.

HRA 1570 The Health Record Professional: Issues and Problems 2 Q.H.

(Prereq. Senior status)

This course provides the senior health record student with information on a range of topics that are germane to his/her professional role but that may not have been included in other professional courses.

HRA 1610 Introduction to Data Processing for the Health Services 4 Q.H.

This is an introductory course designed to introduce the student to the basic concepts of electronic data processing. Topics considered include input, output, storage, computation, and controls. The basic history of automation is reviewed and the concept of computer language is introduced, utilizing FORTRAN. Simple problems are completed on an individual and group basis.

HRA 1620 Systems Analysis 4 Q.H.
(Prereq. HRA 1550)

This course is designed as an introduction to systems analysis, its concepts, and techniques. Special application to health record management is stressed throughout the course.

HRA 1630 Applied Health Statistics 4 Q.H.
(Prereq. Basic statistics course)

Designed to provide the health record student with the opportunity to learn to apply basic statistical techniques to the gathering, analysis, and interpretation of health care and medical record data, as well as the effective use of these tools in such areas as department management and research studies. Agencies involved in collecting statistical data will be reviewed, with the types and sources of information they require; the relation of statistics, epidemiology, and medical records will also be considered.

HRA 1640 Medical Computer Applications 4 Q.H.
(Prereq. EDP Course I)

This course covers utilization of electronic data processing in health care. Overview of current activities and their impact on future trends in health record management information will be discussed. The role of the HRA as an information specialist will be considered.

HRA 1650 Health Record Education

This course is designed to prepare the health record administration student to function as an in-service educator. Topics include needs assessment, teaching techniques, and evaluation methodology.

HRA 1800 Independent Study 4 Q.H.
(Prereq. Permission of instructor)

This independent study project is designed to give students an opportunity to explore in depth a subject relevant to their interests. It is designed to give them the opportunity to study a problem, present a proposal, carry out a study or a course of action, and prepare both written and oral presentation of their activities.

HRA 1810 Special Topics I**2 Q.H.**

The course provides specialized study in medical records.

HRA 1820 Special Topics II**2 Q.H.**

The course provides specialized study in medical records.

Respiratory Therapy

RTH 1111 Respiratory Therapy Seminar I 1 Q.H.

This is a survey course designed to introduce the beginning respiratory therapy student to the role of respiratory therapists in health-care delivery.

RTH 1112 Respiratory Therapy Seminar II 1 Q.H.

This is a survey course designed to introduce the beginning student to therapeutic modalities of respiratory care.

RTH 1113 Respiratory Therapy Seminar III 1 Q.H.

Continuation of RTH 1112, including introduction to life-support systems.

RTH 1301 Professional Practice Laboratory I

(Prereq. RTH 1331 concurrently)

1 Q.H.*

This lab is designed to provide practice in basic care skills through laboratory exercises and simulation of patient-care situations.

RTH 1302 Professional Practice Laboratory II

(Prereq. RTH 1301, RTH 1332 concurrently)

1 Q.H.*

The lab is designed to provide students with hands-on experience in working with respiratory therapy equipment. Simulated patient-management problems will be set up in the lab to provide problem-solving experience.

RTH 1320 Cardiopulmonary Physiology 4 Q.H.

(Prereq. Satisfactory completion of the first-year courses)

The course is designed to provide a detailed introduction to the clinical diagnostic procedures employed in evaluating cardiopulmonary patients and description of the etiology, patho-physiology, diagnosis, and treatment of major cardiopulmonary diseases.

RTH 1321 Cardiopulmonary Disease 4 Q.H.

(Prereq. Satisfactory completion of the first-year courses)

This course is designed to provide a detailed introduction to the clinical diagnostic procedures employed in evaluating cardiopulmonary patients and description of the etiology, pathophysiology, diagnosis, and treatment of major cardiopulmonary diseases.

RTH 1331 Introduction to Patient Care 4 Q.H.

This course is designed to provide an opportunity for the student to gain knowledge and understanding of basic patient-care skills, including moving and positioning of patients, infection control, basic observation and assessment skills, and familiarity with the techniques of cardiopulmonary resuscitation. An opportunity will also be provided for the development of the student's interpersonal and communication skills.

RTH 1332 Introduction to Respiratory Care 4 Q.H.

(Prereq. RTH 1331 and pharmacology concurrently)

This course is basic to all other professional respiratory therapy courses. Focus is on the theory and application of medical gas administration and humidity/ aerosol therapy.

RTH 1403 Professional Practice Laboratory III

(Prereq. RTH 1302, RTH 1433 concurrently)

1 Q.H.*

The lab is designed to provide students with hands-on experience with respiratory therapy procedures. Simulated patient-management problems will be set up in the lab to provide problem-solving experience.

RTH 1404 Professional Practice Laboratory IV

(Prereq. RTH 1403, RTH 1434 concurrently)

1 Q.H.*

The lab is designed to provide students with an opportunity to acquire experience in working with respiratory therapy life support equipment. Simulated critical care problems will be set up in the lab to provide problem-solving experience.

RTH 1411 Clinical Practice I**6 Q.H.**

(Prereq. RTH 1332 completed and RTH 1433 concurrently)

This is the first course designed to provide clinical experience in hospitals. Focus is on respiratory care for noncritical patients. Emphasis is placed on infection control, medical gas administration, humidification of medical gases, aerosol therapy, chest physiotherapy, deep breathing treatments, and the administration of aerosol medications.

RTH 1412 Clinical Practice II**6 Q.H.**

(Prereq. RTH 1433 completed and RTH 1434 concurrently)

The course is designed to provide clinical experience in hospitals. Emphasis is placed on respiratory care for critical patients. Advanced respiratory care topics such as airway care, mechanical ventilation, and hemodynamic monitoring are reviewed.

RTH 1414 Clinical Seminar I**1 Q.H.**

(Prereq. RTH 1411 concurrently)

The seminar is designed to discuss clinical topics and respiratory-care problems encountered during clinical practice in the hospitals.

RTH 1433 Respiratory Care for the Medical and Surgical Patient**4 Q.H.**

(Prereq. RTH 1332)

This course is a continuation of the introduction to respiratory therapy. It is designed as the didactic portion of beginning clinical experience on noncritical

* Lab fee required.

patients. Focus is placed on respiratory-care problems following major surgery and those problems related to medical patients.

RTH 1434 Respiratory Care for the Critical Patient 4 Q.H.
(Prereq. RTH 1433)

The course is the last in a sequence of three directly related to the theory of respiratory therapy procedures. It is designed as the didactic portion of clinical experience on critical patients. Focus is placed on respiratory-care problems encountered with patients in intensive care units.

RTH 1435 Introduction to Perinatal/Pediatric Respiratory Care 2 Q.H.
(Prereq. RTH 1434)

This course is designed to provide the student with the opportunity to acquire knowledge and understanding of human cardiopulmonary development from the time of conception through childhood years. Normal as well as abnormal manifestations of pregnancy, labor, and the process of delivering are also emphasized. Methods and techniques of assessment and delivery of respiratory care will relate to the pediatric patient's pathophysiology of cardiopulmonary disease.

RTH 1505 Cardiopulmonary Laboratory Practice 1 Q.H.*
(Prereq. RTH 1535 concurrently)

This course is designed as the laboratory portion of Cardiopulmonary Laboratory Technology. Focus is placed on the techniques of pulmonary functions testing, blood gas analysis, and cardiovascular testing commonly done in the clinical setting.

RTH 1511 Practicum In Critical Care 4 Q.H.
(Prereq. RTH 1574, RTH 1578)

The course is designed to allow the student to select an area of emphasis from among the following: intensive care units, neonatal-pediatrics, or extracorporeal membrane oxygenation. During the practicum courses students are provided with an opportunity to work in their specialty areas.

RTH 1512 Practicum In Critical Care 4 Q.H.
(Prereq. RTH 1511)

This is a continuation of RTH 1511.

RTH 1513 Perfusion Practicum 10 Q.H.
(Prereq. RTH 1571)

The clinical practice course designed to provide the perfusion technology students with the opportunity to develop, practice, and master skills required to perform extracorporeal circulation procedures. Instruction will also include, but not be limited to, current methods in autotransfusion, myocardial preservation, and intra-aortic balloon support.

RTH 1516 Advanced Clinical Seminar I 1 Q.H.
(Prereq. RTH 1571 concurrently)

This course is designed to complement RTH 1571, Advanced Life Support Systems I. Discussion of current clinical problems related to life-support systems will emphasize problems encountered in the hospital.

RTH 1517 Advanced Clinical Seminar II 1 Q.H.
(Prereq. RTH 1572 concurrently)

This course is designed to complement a professional elective taken concurrently. Discussion of current clinical problems and research related to problems encountered in the hospital.

RTH 1518 Advanced Clinical Seminar III 1 Q.H.
(Prereq. RTH 1511 concurrently)

Course is designed to complement RTH 1511, practicum in Critical Care. Discussion of current clinical problems and research related to critical-care problems is emphasized.

RTH 1519 Advanced Clinical Seminar IV 1 Q.H.
(Prereq. RTH 1512 concurrently)

Continuation of RTH 1518. Complements RTH 1512, practicum in Critical Care.

RTH 1535 Cardiopulmonary Laboratory Techniques 4 Q.H.
(Prereq. RTH 1321 and permission of instructor)

This course is designed to provide the student with an opportunity to gain knowledge and background in principles, theory, and procedures encountered in a clinical cardiopulmonary laboratory. Focus will be placed on the physiological foundations of cardiopulmonary testing.

RTH 1571 Advanced Life Support Systems I 4 Q.H.
(Prereq. RTH 1434)

Designed to introduce students to selected techniques of advanced life support applied to the critically ill patient.

RTH 1572 Perfusion Technology 4 Q.H.
(Prereq. RTH 1571)

Designed to introduce students specializing in perfusion technology to the theory, principles, and concepts of cardiovascular perfusion.

RTH 1574 Advanced Clinical Physiology 4 Q.H.
(Prereq. PAH 1204 and permission of instructor)

This lecture course is designed to enrich the respiratory therapy students' program by providing them with an opportunity for an in-depth exposure to medical physiology, based on the concept of the homeostatic state and its application to the clinical setting.

RTH 1576 Neonatal Respiratory Care 4 Q.H.
(Prereq. RTH 1574)

The course is designed to provide the student with an understanding of the methods and techniques of respiratory therapy for neonatal patients. Emphasis is placed on mechanical ventilation, newborn care, and the respiratory distress syndrome.

RTH 1578 Advanced Medical Monitoring 4 Q.H.
(Prereq. RTH 1574)

The course is designed to enrich the students' program by providing them with an opportunity for an in-depth exposure to the theory and application of physiologic monitoring systems and their use in critical-care settings.

* Lab fee required.

RTH 1631 Management of Respiratory Care Departments 4 Q.H.

The major purpose of this course is to expose respiratory therapy students to the techniques, theories, and tools of management which will enable them to develop a workable management system for respiratory care departments. The course is designed to provide an overview and a basic conceptual understanding of the role and the task of managing. It will deal with the functions, duties, and responsibilities of managers, and the things managers must do. Theoretical considerations will be alternated with practical applicants (cases, questions and exercises) to enhance learning.

RTH 1632 Methods and Materials of Teaching Respiratory Therapy 4 Q.H.

A study of the systems approach to teaching respiratory therapy. The course covers development of instructional goals based on a needs assessment, behavioral learning objectives, instructional strategies, and evaluation instruments. Emphasis is placed on the use of criterion-referenced measurement strategies to evaluate mastery of clinical skills.

RTH 1633 Student Teaching and Seminar 4 Q.H.

Part-time participation twelve hours per week in a supervised respiratory therapy learning experience designed to provide practice with didactic, laboratory, and clinical teaching. The students will have an opportunity to demonstrate, evaluate, and develop their teaching skills. A one-hour seminar held weekly will discuss problems encountered in the classroom, laboratory, and hospital.

RTH 1634 Rehabilitation of Children with Respiratory Disorders 4 Q.H.

The course applies a broad definition of rehabilitation to the life situations of children with respiratory disorders. Students will have the opportunity to learn specific skills that address the recognition and management of acute and chronic problems. Model systems of psychosocial as well as physical support based on these skills will be developed. The course is open to students in health or human service disciplines who have had clinical or field experience.

RTH 1635 Practicum in Pediatric Pulmonary Rehabilitation 1 Q.H.

(Prereq. RTH 1634 or permission of instructor; enrollment limited)

Counselorship under medical direction at a one-week summer camp for children with severe pulmonary disorders. Students will apply skills acquired in RTH 1634 in residential camp situation and respond to medical or psychosocial problems in a manner consistent with current methods in his/her discipline. Group and individual discussions with the instructor will clarify insights and experiences. Daily case reports will document the learning process.

RTH 1801 Directed Independent Study I 2 Q.H.

(Prereq. RTH 1511 concurrently)

This is a course of directed study in a student's major wherein in-depth investigation of a special interest area is undertaken.

RTH 1802 Directed Independent Study II 2 Q.H.

(Prereq. RTH 1512 concurrently)

This is a course of directed study in a student's major wherein in-depth investigation of a special interest area is undertaken.

Nursing

NUR 1100 Introduction to Professional Nursing and the Health Sector 4 Q.H.

The first course in nursing introduces the student to concepts of health, the health care delivery system, professional nursing and roles in nursing. A variety of societal and environmental factors that affect the health care system in general and nursing practice in particular will be examined.

NUR 1101 The Theoretical Basis for Nursing Practice 4 Q.H.

(Prereq. NUR 1100)

This course introduces the philosophical and theoretical basis for the practice of nursing. Major nursing theorists are surveyed. The role of theory and its use in nursing practice is discussed. The concepts and theories that constitute the conceptual framework of the curriculum are emphasized. From the perspective of adaptation theory as the organizing theme of the curriculum, concepts essential for learning the

professional nursing practice role are introduced. Building from the concepts about health and illness introduced in NUR 1100, the concepts *client*, *human need*, and *nursing process* are explored. Communication as an essential professional role behavior is emphasized.

NUR 1102 Human Nutrition 4 Q.H.

(Prereq. NUR 1100)

The study of the science of nutrition provides the student the opportunity to plan and select a nutritionally adequate and prudent diet; recognize food and nutrition misinformation; utilize objectivity when working with individuals to meet their nutritional needs; and recognize the importance of nutrition and its relation to health. The course will examine the physiological functions of the major nutrients and food sources, as well as common areas of consumer concern about nutrition.

NUR 1200 Nursing**6 Q.H.**

(Prereq. NUR 1100, NUR 1101, NUR 1102, CHM 1111, CHM 1112, BIO 1140, BIO 1141, BIO 1295)

Students will explore and begin to enact the professional role in a clinical setting. Implementation of nursing process and psychomotor skill development are given particular emphasis. Students provide basic nursing care while strengthening their understanding of nursing process through its application to individuals. Nursing models will be discussed in terms of their potential to add diversity to nursing approaches. Lectures and assignments assist the student to utilize and explain the scientific and conceptual basis for nursing activities. Professional responsibility is explored in a legal and ethical framework with specific attention to the students' individual role development.

NUR 1201 Nursing**6 Q.H.**

(Prereq. NUR 1200, BIO 1190, BIO 1293)

Students will continue to enact the professional role in a clinical setting. Physical assessment and patient education are given particular emphasis. Students provide basic nursing care and continue to strengthen their understanding of nursing process. Lectures and assignments assist the students to utilize and explain the scientific and conceptual basis for nursing activities. Professional responsibility is explored in the context of change and leadership.

NUR 1300 Common Problems**7 Q.H.**

(Prereq. NUR 1201)

The nursing process is continued and implemented in more complex situations. Assessment of client/patient status and nursing interventions are centered on individuals with pathophysiological and psychological disturbances. Major content areas addressed are: adaptation to inflammations, immunity, stresses or pre- and post-operative experiences, and metabolic responses related to alteration in health status. The effects of the client/patient's altered status on family members are explored. Students are introduced to drug therapy and begin administration of medications. Under faculty guidance, students develop a teaching plan and nursing care analysis for selected clients. Learning experiences are planned for students to provide for continuity of patient care through collaboration with clients, health team members, and appropriate community agencies.

NUR 1301 Psychiatric/Mental Health Nursing

(Prereq. NUR 1300 or NUR 1302)

7 Q.H.

This course is designed to help students develop a beginning knowledge of mental and emotional illness through a basic understanding of the dynamics of human behavior and beginning skills in therapeutic intervention. The student is introduced to the concepts of family and group therapy and crisis intervention techniques.

NUR 1302 Transition**9 Q.H.**

(Prereq. CHM 1111=n1112, BIO 1140=n1141, BIO 1293, BIO 1295, PSY 1111=n1112, BIO 1120)

The first nursing course for registered nurse students

in the baccalaureate degree program introduces the purposes and objective of this program and the philosophy of baccalaureate education. It also broadens students' perspectives of professional nursing and provides opportunities to complement and validate, through guided and independent study, students' knowledge of roles and role conflicts, the communication process, group dynamics, and the nursing process.

NUR 1303 Life Crises: Analysis and Response**4 Q.H.**

This interdisciplinary course concerns personal, family, and community crises identified from literature, health agency clientele, and student sources. Concepts from nursing, sociology, anthropology, and social psychology are used to assess critically the individual's experience of crisis and the approaches used by providers in human service systems to help people in crisis, (e.g., at times of death, divorce, job loss, illness, rape, suicide attempt, and natural disaster). This course is intended as an opportunity for students in consumer and/or health and human service roles to: (1) critically examine the meaning of life crises in a social-cultural vs. psychopathological framework; and (2) explore principles and creative strategies that might be used in responding constructively to crises in their own lives or in their experience as health or human service workers. Instructional methods include lectures and discussions emphasizing critical analysis of crisis situations from the literature, from personal and professional experience, and from films. The course is open to upper-division students in nursing, criminal justice, and applied social science, and the health professions.

NUR 1400 Maternal and Child Nursing**9 Q.H.**

(Prereq. PSY 1241, PCL 1305, and NUR 1300; NUR 1301 or 1302)

The focus of this course is on the application of the nursing process in maintaining optimal health for child-bearing and child-rearing families from various cultural and social backgrounds. Opportunity is provided for students to apply nursing process with clients at selected developmental stages and to assist families in coping with stresses that interfere with health. Learning experiences provided assist the student in furthering personal and professional development.

NUR 1401 Medical-Surgical Nursing**9 Q.H.**

(Prereq. NUR 1300, NUR 1301, PCL 1305)

Focus is placed on the effects of episodes of acute illness on individuals, families, and society. Alterations and adaptations in physiology characteristic of acute episodes of illness and the nurse's role in intervention are discussed. Content also includes discussion of the impact of illness on patterns of living, needs for health teaching, and continuity of care. Guided clinical experiences are planned, with emphasis on the use of the nursing process and the development of those skills necessary to plan and implement care for the adult who is in an acute care setting.

NUR 1500 Community Health Nursing 9 Q.H.

(Prereq. NUR 1401, NUR 1400, PSY 1242, SOC 1100)

This course provides an opportunity for students to increase their understanding of the variety of ways in which families, groups, and communities organize to meet the health and welfare needs of their members. Particular attention is given to the role of the nurse in planning with individuals, families, groups, and community agencies to meet recognized needs. Themes occurring throughout the course include political implications of health care delivery and current research that affects family and group health and community nursing. Values clarification and cultural experience of nurse and client, are also explored. Laboratory experience involves work with individuals, families, and communities.

NUR 1501 Contemporary Issues in Nursing 5 Q.H.

(Prereq. NUR 1401, NUR 1400, SOA 1100)

This course provides the student with the opportunity to examine the current body of nursing knowledge as it is organized within the various conceptual models of nursing. Student will also analyze contemporary issues in nursing within the context of the historical background of the profession and those forces which influence it. Present and future roles of the professional nurse are discussed.

NUR 1502 Introduction to Research in Nursing

(Prereq. NUR 1401, NUR 1400, SOA 1100) 4 Q.H.

This course builds on students' prior exposure to selected studies applied to nursing. Both qualitative and quantitative research are discussed. The value of each to the practice of nursing and the significance of research in nursing to both practitioner and consumer are emphasized.

Criminal Justice

CJ 1101 Administration of Criminal Justice 4 Q.H.

This course surveys the contemporary criminal justice system from the initial contact with the offender through prosecution, disposition, incarceration, and release to the community. Emphasis is placed on major systems of social control: police, corrections, juvenile justice, mental health systems, and their policies and practices relative to the offender. A balance is maintained in providing legal, empirical, and sociological materials.

CJ 1110 Topics in History of Criminal Justice

4 Q.H.

The course provides a historic survey of the principles of criminal justice in the ancient and medieval periods, with emphasis upon the impact of religion and philosophy.

CJ 1111 Topics in History of Criminal Justice

4 Q.H.

A continuation of the historic survey with an examination of the effects of the Renaissance and the Reformation, and the rise of nation states.

CJ 1112 Critical Issues in Criminal Justice and Criminology

4 Q.H.

Introduces students to the major issues and ethical considerations facing criminal justice and criminology today. There will be six to eight major critical, moral, and ethical issues discussed. Core topics could be (but are not confined to) the death penalty, abortion, euthanasia, abolition of the insanity plea, victimless crimes (prostitution, drug abuse, gambling), and gun control. These issues will be presented in the format of pros and cons and will involve student presentations or debates.

CJ 1113 Critical Issues in Criminal Justice**Administration**

4 Q.H.

Provides a comprehensive understanding of the major issues in the functional areas of law enforcement, private security, prosecution, and courts. This course is designed to stimulate and reflect the controversial characteristics of many criminal justice operations. Students are exposed to these debates through the objective presentation of all sides of the issues.

CJ 1151 Introduction to Law and the Legal Process

4 Q.H.

Provides an introduction to the law and the legal system of the United States. It sets forth the fundamentals of our legal process and provides a summary description of both the private and public law system. Its goal is to present an overview of the traditional structure, as well as the basic principles of law.

CJ 1201 Criminology

4 Q.H.

The course covers patterns and evolution of criminal behavior, the social forces involved, and development of the individual criminal; administration of criminal justice — law, courts, police, prisons.

CJ 1251 Introduction to Criminal Law

4 Q.H.

The course deals with the area of criminal responsibility, some of its limitations, and certain modifications substantially affecting it. The course requires an ability to express in writing both the knowledge of a particular concept and the ability to identify it in a complex fact pattern and discuss its implications and ramifications.

CJ 1252 Criminal Due Process

4 Q.H.

(Prereq. CJ 1251)

This is a required course focusing on a historical evaluation of the Fourteenth Amendment and its use in making rights prescribed under the Bill of Rights

applicable to the individual states. Also detailed in the course are the inherent problems of the Fifth and Sixth Amendments, including the effect of their implications on such matters as police practices, illegal search and seizure, and right to counsel. Students are expected to be familiar with basic concepts as well as changing interpretations so that they can cite cases that may stand as precedents for conclusions they draw.

CJ 1301 Introduction to Security 4 Q.H.

The course examines the organization and administration of security and loss prevention programs in industry, business, and government. Emphasis is placed on the protection of assets, personnel, and facilities, and focuses on the relations between security organizations and government agencies.

CJ 1311 White-Collar Crime 4 Q.H.

Intends to give the student a basic understanding of white-collar crime. The course will cover such topics as: nature and extent of white-collar crime, the social-psychologic makeup of white-collar crime—typologies, present efforts directed toward controlling it, and understanding the interagency and jurisdictional problems and the benefits of cooperation.

CJ 1312 Organized Crime 4 Q.H.

Provides the student with an understanding of the phenomenon labeled "organized crime." It is approached from the law enforcement perspective; however, the general criminal justice implications are stressed. The corruptive influences of the phenomenon are dealt with, as well as the overzealous enforcement aspects which lead to violations of constitutional safeguards. The nature of intelligence activities and computerized information concerning organized crime are explored, as well as the sensitive privacy issues that are concerned. Problems of definition, identification of participants, attainment of public understanding and support, legal limitations in dealing with the phenomenon, and the involvement of otherwise reputable citizens as consumers or unwitting allies are discussed. Strategies, both present and proposed, for controlling or eliminating organized crime are considered. Finally, the relationship of this phenomenon to "white-collar crime" is evaluated.

CJ 1314 Security Management and Supervision 4 Q.H.

(Prereq. CJ 1301 or equivalent)

Deals with the roles and responsibilities of the security manager. Special attention is given to the responsibilities of planning, organizing, staffing, directing, controlling, representing, and innovating. The manager's responsibility in professionalizing security and other relevant issues are also explored.

CJ 1315 Security Design and Technology 4 Q.H.

(Prereq. CJ 1301 or equiv.)

Acquaints students with options and applications of today's scientific and technological products. An attempt is made to prepare students in the area of security planning and develop in them the managerial skills needed to plan security systems using the state-of-the-art modern-day technology.

CJ 1317 Crime Prevention and Security 4 Q.H.

This course assumes that all citizens have the responsibility to prevent crime and promote security. The content ranges from the theoretical level to the organizational and personal strategies of how to employ the techniques necessary to protect oneself and others from crime, thereby promoting crime prevention and security.

CJ 1318 Terrorism 4 Q.H.

Attempts to give the student an understanding of what terrorism is and why it has become so popular. Topics examined will include: the role of news media, political consequences of terrorism, the military as a resource, and the role of the hostage.

CJ 1401 Law Enforcement Administration and Management 4 Q.H.

The course covers the principles of police organization, administration, and management, including staff and line functions, chain of command, span of control, selection of personnel, and promotional systems. Consideration is also given to special problems such as strikes, natural and atomic disasters, narcotic traffic, and vice control.

CJ 1411 Police Operations 4 Q.H.

(Prereq. CJ 1401)

The course offers a general survey of police operational procedures, including patrol, traffic, interrogations, and report writing. Role playing is used extensively to demonstrate interviewing methods.

CJ 1421 Police-Community Relations 4 Q.H.

(Prereq. CJ 1401, CJ 1411, and junior or senior status)

The course covers police-public contact; uses of the communications media in projecting the police image; responsibilities of police in dealing effectively with minority groups, civil rights, civil disorder, and public protection. An exploration of the role and function of the police in intergroup relations is also included.

CJ 1422 Human Factors in Policing 4 Q.H.

(Prereq. CJ 1411)

This course focuses on the theory and practice of human relations and conflict management necessary for effective policing. It is recommended for those with a career interest in policing.

CJ 1423 Criminal Justice Planning 4 Q.H.

(Prereq. CJ 1452; a statistics course; and middle, junior, or senior standing)

The course examines criminal justice planning theory and methods. Emphasis is on the need for criminal justice planning and the tools used in the planning process. Students in small groups are expected to prepare a sample criminal justice plan during the term.

CJ 1424 Seminar in Law Enforcement 4 Q.H.

(Prereq. CJ 1401, CJ 1411, and junior or senior standing)

The course provides an opportunity for free discussion about the numerous problems facing the law enforcement officer. Periodic oral and written reports

are required. Guest lecturers are invited to participate in and lead discussion sessions. An effort is made to have students formulate their own philosophy of law enforcement prior to graduation.

CJ 1425 Police Discretion **4 Q.H.**
(Prereq. Middler, junior or senior standing)

This course examines the nature and impact of discretion as it relates to police decision making. Attention is given to various forms of police discretion and ways in which it can be structured, confined, and checked. Students have the opportunity to examine and learn to analyze sample police department policies and study different formal and informal methods of developing policies. Students also study the relation of discretion to controlling police behavior and police corruption.

CJ 1451 Criminal Justice Research **4 Q.H.**
(Prereq. MTH 1010 or equiv., and middler, junior, or senior standing)

This is a survey course of methods for basic and applied research in criminal justice, combining statistics and research methods. While providing minimal research literacy, this course concentrates on research application by stressing discussion of the general role of research in the discipline and specific contributions advanced by studies in the literature.

CJ 1452 Research Methods in Criminal Justice **4 Q.H.**

(Prereq. A statistics course and middler, junior, or senior standing)

The course focuses on development of research design of the kind most useful to criminal justice problems; understanding some of the most important issues and problems facing researchers in the field; use of various data collection methods, including observation, interviewing, questionnaire construction, and scales for survey analysis; validity and reliability; computer application in criminal justice.

CJ 1471 Criminal Investigation I **4 Q.H.**

Designed to instruct the student as to the importance of the investigator in the criminal justice system. Presented are the scientific techniques and organization of a criminal investigation, demonstrating the advantages an investigator gains when using such scientific techniques. Offering a synergistic approach to learning, this course uses a modern textbook to provide a firm foundation and enhances it with lectures by several experienced practitioners who relate the real world of criminal investigation to the fundamentals presented in the course text. The instructors cement the union of these two views by presenting practical demonstrations of the scientific techniques in evidence processing.

CJ 1472 Criminal Investigation II **4 Q.H.**
(Prereq. CJ 1471)

The basic approach of instruction has the same educational format as Criminal Investigation I but studies in depth the typical offenses encountered by

the criminal investigator. These include, but are not limited to, the following: robbery, burglary, motor vehicle theft, sex offenses, death investigation, organized crime, fraud, drugs and narcotics, and arson. Fire and arson investigations differ in many aspects from the investigation of other crimes. A major portion of the course is devoted to this comparison.

CJ 1473 Forensic Laboratory **4 Q.H.***
(Prereq. CJ 1471)

A survey of the elements of microscopy and basic chemistry as they apply to the study of firearms, hair, fibers, blood, paint, tools, glass, documents, laundry marks, poisons, and other materials that constitute physical evidence.

CJ 1501 Evidence I **4 Q.H.**
(Prereq. CJ 1251, CJ 1252)

The goal of this course is to provide students the opportunity to develop their understanding of the manner in which legal issues and disputes are resolved by trial. Study will focus on the manner in which the trial system works and the reasoning behind the rules governing its operation, including rules of evidence: the mechanics of the adversary system, relevancy, reliability, and rules of exclusion based upon policy considerations other than relevancy and reliability. Learning tools will include videotapes, mock trials, observation of actual court trials, lectures, take-home assignments, and exams.

CJ 1502 Evidence II **4 Q.H.**
(Prereq. CJ 1501)

This course continues with reliability and rules of exclusion, based upon policy considerations other than relevancy and reliability as set forth in Part I.

CJ 1511 Survey of Criminal Evidence **4 Q.H.**
(Prereq. CJ 1251, CJ 1252)

This survey course focuses upon the fundamentals of criminal trial procedure and the rules of evidence as they apply to the trial of a criminal case. Students are required to read and brief criminal court cases.

CJ 1512 Seminar in Law and Criminal Justice **4 Q.H.**

(Prereq. CJ 1251, CJ 1252, and junior or senior standing)

Specific topic to be announced.

CJ 1601 Survey of Correctional Systems **4 Q.H.**
(Prereq. CJ 1201)

The course offers an introduction to penology and corrections, exploring the public reaction to convicted offenders historically, while concentrating on issues and programs of contemporary corrections.

CJ 1611 Theories in Penology **4 Q.H.**
(Prereq. SOC 1100 and CJ 1201)

The course offers a philosophical approach to the development of punishment in the United States, as examined in a historical context. Issues of justice and morality are considered as they are manifested in contemporary penal structure. Readings include

* Lab fee required.

selections from eighteenth-, nineteenth-, and twentieth-century novelists, philosophers, and criminologists.

CJ 1612 The Administration of Juvenile Justice 4 Q.H.
(Prereq. SOC 1100, CJ 1201)

Course work examines the juvenile court, its philosophy, procedure, and personnel. Focus is on the discretionary processes by which juveniles are labeled delinquent, dependent, and neglected. The roles played by police, prosecution, defense, bench, and social service workers are considered. Field visits are arranged.

CJ 1613 Probation and Parole 4 Q.H.
(Prereq. CJ 1601)

The course examines the nature and problems of correctional field service, both adult and juvenile.

CJ 1614 Correctional Institutions 4 Q.H.
(Prereq. CJ 1601)

The course offers an analysis of the organization and administration of correctional institutions.

CJ 1615 Crime and Criminal Justice: A Comparative View 4 Q.H.
(Prereq. CJ 1101, SOC 1100, or equiv.)

The course examines the problems of crime and its control from a comparative perspective. Countries such as the Soviet Union, China, France, East and West Germany, Great Britain, Holland, Finland, and Sweden are analyzed in terms of incidence and type of deviance and crime, as well as in terms of their approach to social control and the prevention of crime. Points of divergence between these countries and the United States will be examined, with regard to their perceived causes of crime and their differing approaches to rehabilitation and crime prevention.

CJ 1616 Women and the Criminal Justice System 4 Q.H.
(Prereq. Middler, junior, senior standing)
This course is intended to introduce students to issues relating to roles taken by women involved with the criminal justice system and to the system's various responses to women in these roles. Specific focus will be directed toward women as victims of crime, as offenders, and as practitioners.

CJ 1617 The Female Offender 4 Q.H.
(Prereq. SOC 1100 and CJ 1201)

The course addresses itself to the female at various stages in the criminal justice system, from commission of a crime to parole. Both the juvenile and adult offender are studied. The thrust of the course is a critical analysis of existing theory and research on the female offender, with emphasis on the socialization, roles, and social participation of society at large. The male offender is also considered at each level for purposes of comparison.

CJ 1618 Victims of Crime 4 Q.H.

Examines current theory and research regarding victims of crime. Special attention is devoted to concepts such as victim vulnerability and victim culpability. In addition, the implications of a victim-oriented perspective for the administration of justice are discussed. Current victim programs, including restitution, mediation, and compensation, are assessed.

CJ 1801, CJ 1802, CJ 1803, CJ 1804 Directed Study (each) 4 Q.H.

Military Science

AIR 1110 The Air Force Today 1 Q.H.

Examines the role of the U.S. Air Force in the contemporary world. Topics include background, mission, and organization of Air Force and functions of U.S. strategic forces. Also, emphasis is placed on development of written communicative skills.

AIR 1111 Leadership Laboratory I 1 Q.H.

Introduction to the customs, traditions, and courtesies of the Air Force through guest speakers, seminars, and a field trip to an Air Force base.

AIR 1120 Air Force Today 1 Q.H.

Continues study of the contemporary Air Force by examining general purpose forces, aerospace support forces, and the total force structure.

AIR 1121 Leadership Laboratory II 1 Q.H.

Continues AIR 1111 with emphasis on the role and responsibilities of an Air Force company grade officer.

AIR 1130 The Air Force Today 1 Q.H.

The third and final portion of the study of the contemporary Air Force of today. This portion of the course gives a more in-depth study of the total force structure.

AIR 1131 Leadership Laboratory III 1 Q.H.

Continues AIR 1121 with emphasis on a more in-depth study of the roles and responsibilities of Air Force company grade officers.

AIR 1210 The Development of Air Power 1 Q.H.

History of the development of air power from balloon experiments up through World War II. Emphasis on interrelation of technology, doctrine, historical events. Student participation and presentations are emphasized to enhance verbal communicative skills.

AIR 1211 Leadership Laboratory IV 1 Q.H.

Emphasizes development of techniques used to direct and inform. Students are assigned leadership and management positions in the AIR 1111 programs described above.

AIR 1220 The Development of Air Power 1 Q.H.
History of airpower since 1946, with emphasis on the U.S. Air Force. Includes the role of air forces in conflicts and the effect of space-age technology on air power. Also an examination of the employment of U.S. air power in peaceful ways.

AIR 1221 Leadership Laboratory V 1 Q.H.
Continues AIR 1211. Adds a special program in preparation for field training.

AIR 1310 Management and Leadership I 4 Q.H.
Management and leadership from the point of view of the Air Force junior officer. The individual motivational and behavioral processes, leadership, communication, and group dynamics are covered to provide a foundation for the development of the junior officer's professional skills as an Air Force officer.

AIR 1311 Leadership Laboratory VI 1 Q.H.
Supervisory practice and exercise of leadership functions in controlling and directing activities of the cadet group. Development of leadership potential in a practical, supervised training laboratory.

AIR 1320 Management and Leadership II 4 Q.H.
Continues AIR 1310 with special emphasis on the basic managerial processes involving decision making, utilization of analytical aid in planning, organizing, and controlling in a changing environment. Organizational and personal values, management of forces in change, organizational power, politics, and managerial strategy and tactics are discussed within the context of the military organization. Actual Air Force cases are used to enhance the learning and communication processes.

AIR 1321 Leadership Laboratory VII 1 Q.H.
Continues AIR 1311. Emphasis on supervisory and leadership skills. Emphasis on advantages of an Air Force career.

AIR 1410 The Military in American Society 4 Q.H.
Study of the military's role as an institution in a democratic society. Topics: civil-military interaction and the military as a profession. Emphasis on developing communicative skills through student presentations.

AIR 1411 Leadership Laboratory VIII 1 Q.H.
Exercise of management functions in planning, supervising, and directing cadet group activities. Opportunity to acquire proficiency in military leadership skills.

AIR 1420 U.S. National Security 4 Q.H.
Study of the role of the military in maintaining the security of the United States. Examines the international environment, the background of defense policy, strategy, and forms of conflict. Addresses specific issues, including weapons acquisition, arms control, nuclear deterrence, and the national military decision-making process.

AIR 1421 Leadership Laboratory IX 1 Q.H.
Continues AIR 1411. Students prepare themselves for professional duties.

ARM 1100 Leadership Lab I 0 Q.H.
Introduction of first-year ROTC students to the basic tenets of discipline and regimentation of the U.S. Army. Includes the basics of proper wear of military clothing, proper rendering of military courtesies, military customs and traditions, individual and group drill and ceremonies, manual of arms for the M16A1 rifle, and physical fitness training. Attendance required for all first-year cadets enrolled in an ROTC course.

ARM 1101 Introduction to the Army 1.5 Q.H.
Introduction of first-year ROTC students to the basic customs and traditions of the Army and ROTC, and the benefits, obligations, and structures of both. The course defines each Army branch (infantry, armor, field artillery, etc.) to include the branch mission and nature of primary duties associated with an officer's assignment to a particular branch. Rappelling, knot tying, rope bridge building, and land navigation techniques are taught and executed in a hands-on environment.

ARM 1102 Basic Leadership Skills 1.5 Q.H.
Basic Leadership Skills is a modular training course designed to teach leadership and management concepts. There are four modules, each designed to illustrate particular management skills: problem analysis and decision-making, planning and organizing, delegation and control, and interpersonal skills. Realistic management simulations and structured exercises are the primary methods used to teach essential leadership skills.

ARM 1103 Tactical Simulations 1.5 Q.H.
Mission, organization, and composition of the basic infantry rifle squad. Includes basic combat formations, movement techniques, unit capabilities, and planning considerations. Uses the Dunn-Kempf war-game in a series of practical exercises that apply classroom instruction through use of a boardgame and miniatures simulating the modern battlefield.

ARM 1200 Leadership Lab II 0 Q.H.
Introduction and hands-on training for the second-year ROTC cadets. Includes required basic military skills, including nuclear, biological, and chemical protective training; selected weapons training; use of U.S. Army communications equipment; land navigation; orienteering; rappelling; and limited military vehicle maintenance training. Attendance required for all second-year ROTC cadets enrolled in an ROTC course.

ARM 1201 Marksmanship 1 Q.H.
Instruction and practical application in basic rifle marksmanship techniques, safety, and range operation. The course will cover sanctioning bodies rules for small-bore rifle competition firing, preparation for competition firing, preparation for competition, and intra-class competition.

ARM 1202 Comparative Armies**1.5 Q.H.**

An introduction to the roles and organization of the U.S. Army, Army Reserves and National Guard. Utilizing these concepts as building blocks, an examination and comparison of armies currently impacting on U.S. doctrine and tactics is undertaken. The Soviet, Warsaw Pact, NATO, Israeli, and Third World forces are integrated into the course structure through the study and examination of current events inside and outside the military establishment.

ARM 1203 Methods of Instruction**1.5 Q.H.**

This course provides an introduction to the concept of training management, including the fundamentals of teaching, principles of learning, and the establishment of training objectives. In addition, students will demonstrate proper instructional techniques and lesson plan preparation and conduct classroom instruction. For the most part, specific emphasis is given to hands-on student participation and performance-oriented training.

ARM 1301 Land Navigation**2 Q.H.**

Identify map symbols to natural and manmade features; identify/use military grid reference system; measure straight line and read distance on a map; measure and plot an azimuth; convert azimuth from grid to magnetic grid; grid; locate an unknown point using polar coordinates; locate an unknown point using intersection; locate an unknown point using resection; locate an unknown point using modified resection; determine the evaluation of a specific point on the map. Inspect a compass for accuracy; navigate from one point on the ground to another.

ARM 1302 Military Tactics and Training**2 Q.H.**

Introduction to the fundamentals of offensive and defensive combat at the squad and platoon levels. Includes unit organizations and capabilities, tactical planning, combat orders; utilizes practical exercises placing the student in leadership roles in simulated tactical environments. Additionally, students will learn the proper method to conduct briefings, provide training input, and prepare, conduct, and evaluate training.

ARM 1303 Advanced Leadership Clinic**2 Q.H.**

Classroom, programmed instruction, and practical exercises (e.g., land navigation, physical conditioning, weapons familiarization, and leadership) designed to prepare cadets for maximum individual performance at the six-week ROTC advanced camp, Fort Devens, MA. This course is required for all cadets attending advanced summer camp at Fort Bragg, NC.

ARM 1305 Advanced Leadership Lab V**6 Q.H.**

External leadership lab conducted at Fort Bragg, North Carolina, during the summer quarter. Intensive six-week course includes application of leadership principles in positions at varying levels of responsibility. Supplemental instruction includes: physical conditioning, counseling, senior-subordinate relations, tactical doctrine, international laws of land warfare, and approaches to problem solving. Course attended by students from 123 colleges and universities from

Maine to Florida. All expenses are borne by the U.S. Government, including a stipend of approximately five hundred dollars.

ARM 1400 Leadership Lab IV**0 Q.H.**

Practical application of previously learned skills, techniques, education, and experience by fourth-year ROTC cadets by assisting ROTC cadre in the conduct of ARM 1100, ARM 1200, and ARM 1300. Cadets prepare and present instruction, manage constrained resources, and supervise subordinates. Evaluation is based on active-duty Army criteria. Attendance required for all fourth-year ROTC cadets enrolled in an ROTC course.

ARM 1401 Organizational and Communication Skills**2 Q.H.**

This course will examine the theory, methods, and principles for understanding and motivating human behavior in organizations. The principles and dynamics of leadership will be emphasized and directed toward the development of leadership styles. Practical applications will be made through the use of case studies and group processes.

ARM 1402 Military Law and Ethics**2 Q.H.**

Examination of the issues and responsibilities imposed by law on commanders and staff officers in two broad areas: (1) The military criminal justice system and (2) military administrative law. In the criminal law area, the course presents in-depth analysis of the responsibilities and duties of officers and noncommissioned officers operating in the military justice system. Administrative law subjects focus on the legal basis for command and on administrative due process, judicial review of military activities, and other topical issues. Students address and develop an understanding of the need for ethical conduct and an awareness and sensitivity to ethical issues.

ARM 1403 Leadership Seminar**2 Q.H.**

Provides the senior ROTC cadet with need-to-know information which facilitates his/her entry into active duty. It also provides a forum for a study of personnel, training, logistical, and installation support systems. Personal finances are discussed as well as the officer and noncommissioned officer evaluation systems.

NAV 1100 Naval Science Lab**0 Q.H.**

A period devoted to either drill instruction or to practical work to complement classroom instruction. This course must be taken in each class quarter by all NROTC students.

NAV 1101 Introduction to Naval Science**3 Q.H.**

A general introduction to the naval profession and to concepts of seapower. Instruction emphasizes the mission, organization, and warfare components of the U.S. Navy and Marine Corps. Included is an overview of officer and enlisted ranks and rates, training and education, and career patterns. The course also covers naval courtesy and customs, military justice, leadership, and nomenclature. This course exposes the student to the professional competencies required to become a naval officer.

NAV 1102 Naval Ships Systems I 4 Q.H.

A detailed study of ship characteristics and types including ship design, hydrodynamic forces, stability, compartmentation, propulsion, electrical and auxiliary systems, interior communications, ship control, and damage control. Included are basic concepts of the theory and design of steam, gas turbine, and nuclear propulsion. Also discussed are shipboard safety and firefighting.

NAV 1201 Naval Ships Systems II 4 Q.H.

This course outlines the theory and employment of weapons systems. The student explores the processes of detection, evaluation, threat analysis, weapon selection, delivery, guidance, and explosives. Fire control systems and major weapons types are discussed, including capabilities and limitations. The physical aspects of radar and underwater sound are described in detail. The facets of command, control, and communications are explored as a means of weapons system integration.

NAV 1202 Seapower and Maritime Affairs 3 Q.H.

A survey of the U.S. naval history from the American Revolution to the present with emphasis on major developments. Included is an in-depth discussion of the geopolitical theory of Mahan. The course also treats present-day concerns in seapower and maritime affairs, including the economic and political issues of merchant marine commerce, the law of the sea, the Russian navy and merchant marine, and a comparison of U.S. and Soviet naval strengths.

NAV 1301 Navigation and Naval Operations I**4 Q.H.**

An in-depth study of piloting and celestial navigation, including theory, principles, and procedures. Students learn piloting navigation, including the use of charts, visual and electronic aids, and the theory and operation of magnetic and gyro compasses. Celestial navigation is covered in depth, including the celestial coordinate system, an introduction to spherical trigonometry, the theory and operation of the sextant, and a step-by-step treatment of the sight reduction process. Students develop practical skills in both piloting and celestial navigation. Other topics discussed include tides, currents, effects of wind and weather, plotting, use of navigation instruments, types and characteristics of electronic navigation systems, and the day's work in navigation.

NAV 1302 Navigation and Naval Operations II**4 Q.H.**

A study of the international and island rules of the nautical road, relative-motion vector-analysis theory,

relative motion problems, formation tactics, and ship employment. Also included is an introduction to naval operations and operations analysis, ship behavior and characteristics in maneuvering, applied aspects of ship handling, and afloat communications.

NAV 1310 Evolution of Warfare 4 Q.H.

This course traces historically the development of warfare from the dawn of recorded history to the present, focusing on the impact of major military theorists, strategists, tacticians, and technological developments. The student acquires a basic sense of strategy, develops an understanding of military alternatives, and sees the impact of historical precedent on military thought and action.

NAV 1401 Leadership and Management I 3 Q.H.

A comprehensive advanced-level study of organizational behavior and management in the context of the naval organization. Topics include a survey of the management functions of planning, organizing, and controlling, an introduction to individual and group behavior in organizations, and extensive study of motivation and leadership. Major behavioral theories are explored in detail. Practical applications are explored by the use of experiential exercises, case studies, and laboratory discussions. Other topics developed include decision making, communication, responsibility, authority, and accountability.

NAV 1402 Leadership and Management II 3 Q.H.

The study of naval junior officer responsibilities in naval administration. The course exposes the student to a study of counseling methods, military justice administration, naval human resources management, directives and correspondence, naval personnel administration, material management and maintenance, and supply systems. This capstone course in the NROTC curriculum builds on and integrates the professional competencies developed in prior course work and professional training.

NAV 1410 Amphibious Warfare 4 Q.H.

An historical survey of the development of amphibious doctrine and the conduct of amphibious operations. Emphasis is placed on the evolution of amphibious warfare in the twentieth century, especially during World War II. Present-day potential and limitations on amphibious operations, including the rapid deployment force concept, are explored.

Cooperative Education

COP 1135 Professional Development for Journalists

1 Q.H.

(Prereq. Journalism freshmen only)

The course contains current career information in the field of journalism. It is designed to prepare journalism students for the cooperative education experience as well as to introduce them to the academic preparation necessary to pursue a successful career in the journalist profession. The course teaches effective résumé writing, letters of application, and interviewing techniques specifically geared to those who intent to pursue a career in journalism.

COP 1180 Career Decision Making

4 Q.H.

(Prereq. Freshmen or sophomores in any major or permission of instructor)

A life/career planning course designed to meet the needs and concerns of students who may be undecided or uncertain about their academic major or career direction. Activity-oriented classes address the needs of the group, as well as individual participants, and emphasize self-assessment, career exploration, decision making, and goal setting.

COP 1220 Working in the United States

4 Q.H.

(Prereq. International students only)

A career development course for international students in their first-through-third years. The course is designed to help international students compete more effectively for cooperative education positions in the United States and assist them in their cultural transition into the American work force. Topics include work-oriented cross-cultural issues; the American work ethic; skills development; résumé writing; and interviewing techniques.

COP 1314 Life/Career Planning

4 Q.H.

(Prereq. Juniors and seniors in any major, or permission of instructor)

Highly participatory classes focus on career exploration, self-assessment, job-search techniques, and networking. Students are required to prepare a professional résumé, participate in videotaped mock

interviews, research careers, and investigate graduate and professional schools.

COP 1351 Placement Techniques

1 Q.H.

Career selection and development are discussed concurrently with résumé preparation, interviewing techniques, and effective written communication to facilitate the planning and implementation of a professional career program.

COP 1353 Professional Development for Education and Speech-Language Pathology and Audiology

1 Q.H.

An examination of career management issues for fourth year students. Topics include: work and personal values, current issues in the employment market, planning for graduate study, organizing and conducting a job search, advanced résumé preparation, and interviewing techniques.

COP 1356 Career Management in Physical Therapy

1 Q.H.

Career management in physical therapy is examined in view of professional development and career opportunities; other discussions include résumé preparation, communications, and the interview process.

COP 1360 Nursing Career Management

4 Q.H.

The course provides the opportunity for the student to explore traditional and nontraditional nursing careers and education, the world of work, personal and work values, lifestyle, and career management techniques including skills identification, résumé writing, sources of career information, evaluating a potential employer, assertiveness, and selected current issues relevant to nursing careers.

COP 1365 Professional Development for Civil Engineers

4 Q.H.

The course is designed to foster self-assessment skills and to enhance personal and professional growth, as well as to provide a forum for civil engineering students to exchange views on current professional issues and topics.

Interdisciplinary Courses

INT 1100 Introduction to Art, Drama, and Music

4 Q.H.

This interdisciplinary course offers an integrated approach to three related disciplines: art, drama, and music. Basic vocabulary and analytical techniques are established for each discipline, emphasizing such common elements as color, line, rhythm, texture, and form. Representative works from various periods are examined in the context of the cultures that produced them, and lectures focus on parallels and contrasts among the three disciplines' manifestations of specific trends, principles, and ideals. Lectures, readings, and listening assignments are supplemented by

visits to art galleries and attendance at concerts and theatrical performances. (I)

INT 1110 American Musical Theatre

4 Q.H.

This interdisciplinary course, offered by the departments of drama and music, traces the development of the American musical from the *Black Crook* to *A Chorus Line*. The role of musical theatre, both as entertainment and as serious art form, is considered through an examination of script, score, dance, and design. Works by Bernstein, Rodgers and Hammerstein, the Gershwins, Weill, Lerner and Loewe, and Cole Porter are studied.

INT 1150 Introduction to Women's Studies: Image, Myth and Reality **4 Q.H.**

This is an introductory survey of the issues and methodology involved in the interdisciplinary study of women. Such a survey encompasses the historical, political, economic, and social processes that have created both the image and the reality of women in society. Guest lecturers provide an overview of the many different disciplinary approaches to the study of women. This course is required for Women's Studies minors and may be used as either a general elective or, depending upon the discipline of the coordinator, to satisfy specific concentration requirements. (II)

INT 1151, 1152 Women's Studies: Seminars in Research **(each) 4 Q.H.**

These interdisciplinary Women's Studies seminars allow students to address problems in-depth by researching a topic of particular interest. Careful development of a research plan is encouraged, and opportunities are provided for sharing work-in-progress and for exchanging findings. These courses involve little in-class time, but much consultation with appropriate faculty. The final product of seminar work and research is a major paper. Students in the Honors program may substitute one quarter of honors registration for each seminar, but are still expected to attend the formal sessions of the seminar. These seminars are required for Women's Studies minors.

INT 1161 Introduction to Irish Studies **4 Q.H.**

Introduction to Irish Studies is offered from the perspective of a number of fields in one-week sequences: art, business, drama, history, literature, music, politics, and sociology. The purpose of the course is to introduce students to the important forces that have helped to shape contemporary Ireland and Irish-American culture.

INT 1201 An Analysis of American Racism **4 Q.H.**

This seminar in contemporary aspects of racism in America discusses the cycle by which racism in our institutions helps form our attitudes, and the manner in which our attitudes, in turn, shape our institutions. Emphasis is on the practical, day-to-day aspects of racism, rather than the theoretical and historical.

INT 1215 Into the Ocean World **4 Q.H.**

This course is a comprehensive interdisciplinary introduction to the oceans. The seas' complexity and the far-reaching consequences of our interactions with them demand an awareness of the many facets of marine study. The teaching team consists of specialists in the sciences, social sciences, humanities, and arts, each with an interest in marine issues and a commitment to bridging the gaps among disciplines. The course themes are as broad as the oceans, but, when appropriate, we focus on Boston harbor, a first step into the ocean world for those of us in this area.

INT 1216 A History of Seafaring **4 Q.H.**

This course surveys maritime transportation, trade, travel, exploration, and warfare from approximately 3500 B.C. to the end of the wooden boat era in the late nineteenth century. Prior to the widespread application

of steam power on land and sea in the nineteenth century, ships were the fastest, safest, and most economical means of transporting large cargoes over long distances. Literary and art history sources are also introduced, along with several films on maritime archaeology.

INT 1217 Water, Water **4 Q.H.**

This course is an interdisciplinary introduction to our most precious resource. Water has affected our bodies, our planet, our history, and our culture. How we manage it will shape our future. Because of increasing demand, waste, and pollution, we are depleting—and risk destroying—the limited supply of usable fresh water. This course will look at water through scientific, historical, and cultural viewpoints, and survey contemporary water problems in all their dimensions—political, economic, and technological. (VI)

INT 1320 Exploring the Humanities Through Film **4 Q.H.**

The purpose of this interdisciplinary course is to investigate the ways in which the methods of the humanities can expand one's awareness of the sources, statements, and meanings of popular films. Students will see a series of movies and will analyze and evaluate them in the light of readings, the various approaches presented by faculty members from a number of humanistic disciplines, and their own experience.

INT 1330 Field Experience in Human Services I**4 Q.H.**

Human services students are required to fulfill two fieldwork placements during the last two years of their program. Placement consists of 150 hours on site and generally varies according to the student's interest. Examples of placement sites include community centers, nursing homes, vocational workshops, state and federal agencies, programs for children, and recreational facilities. Experiences are supervised by University staff to maximize the students' learning opportunities.

INT 1331 Field Experience in Human Services II**4 Q.H.**

(Prereq. INT 1330 and Junior or Senior standing)
A continuation of INT 1330.

INT 1333 Senior Seminar in Human Services**4 Q.H.**

This course is designed for seniors specializing in human services. The course examines emerging roles and career options within the human services field. Study focuses on self-examination of attitudes and values affecting delivery of services; exploration of ethical issues and dilemmas relevant to human services, grantsmanship and funding issues; staff supervision and development within human services agencies; and refinement of group leadership skills.

INT 1340 Cultural Aspects of International Business**4 Q.H.**

(Prereq. Middler standing)

Using a managerial perspective, this course will cover

issues that arise when a firm moves from its home country to a host country that may have a different national culture. Although it will usually take the perspective of the United States-based firm that operates abroad, the course will spend some time on what happens to other national firms operating in the United States and in third-country environments. The way in which "corporate culture" evolves, in the context of national culture and the impact on managers, will be a central issue.

INT 1345 The Olympics **4 Q.H.**

The course examines the Olympics as a total institution. Analysis focuses on the history, philosophy, economics, and politics of the games and how they impact on nations throughout the world. Contemporary problems focused on in this course range from race, sex, and drug abuse, to the use of the Olympics as a stage for international politics.

INT 1346 Women in Sports **4 Q.H.**

The course focuses on the changing relationship of women and their experience in sport. Special reference to the history of women's participation (and lack of it) in sport is presented, as well as, attention to women in amateur and professional and collegiate and precollegiate sports participation. The course will detail these developments within the context of social problems and current trends in American sports.

INT 1400 Professional Practices: Individual and Social Dimensions **4 Q.H.**

The course explores the dimensions and dilemmas of freedom and responsibility confronting professional people practicing within limits set by socioeconomic conditions, clients, and other professionals. Case histories are examined to illustrate the dilemmas professionals face, the choices that are typically made, and their consequences on the freedom of the practitioner and on personal and professional integrity.

INT 1401 Health Professionals: Past, Present and Future **4 Q.H.**

This course focuses on the social history of the modern health professions. The course explores long-range patterns in the organization and regulation of the health professions, beginning with the Middle Ages and emphasizing the Jacksonian period, industrialization, modern professional organizations, the growing role of the state, responses of the health professions, and the future of health care in the United States under various corporate-government schemes for reorganizations and "accountability".

INT 1420 Honors Seminar: Survey of the Social Sciences **4 Q.H.**

This course is designed to provide an introduction to important ideas and scholarship in the social sciences for honors students who have completed the freshman year. A two-week period will be devoted to each of the following disciplines: economics, sociology/anthropology, political science, history, and psychology. Topics vary from year to year, depending on the faculty team that teaches the course.

INT 1421 Honors Seminar: Survey of the Natural Sciences **4 Q.H.**

This course is designed to provide an introduction to important ideas and scholarship in the natural sciences for honors students who have completed the freshman year. A two-week period is devoted to each of the following disciplines: chemistry, biology, earth science, mathematics, and physics. Topics vary from year to year, depending on the faculty team that teaches the course.

INT 1422 Honors Seminar: Survey of the Humanities **4 Q.H.**

This course is designed to provide an introduction to important ideas and scholarship for honors students who have completed the freshman year. A two-week period will be devoted to each of the following disciplines: art, music, drama, literature, and philosophy. Topics vary from year to year, depending on the faculty team that teaches the course.

INT 1580 Physical Chemistry with Biological Applications **4 Q.H.**
(Prereq. BIO 1236)

This course examines physiochemical principles as they apply to biological processes. Topics include chemical equilibria, reaction kinetics, basic thermodynamics, oxidation-reduction reactions, bioenergetics, macromolecules in solution, and transport. The approach is quantitative, and problem solving as a tool for learning is emphasized. Basic assumptions and limitations underlying principles are explained; for the most part, however, rigorous derivations are avoided. Applications to basic experimental techniques in biochemistry are made by way of relevant biochemical examples.

INT 2101 Toward Internationalism: Perspectives of Intercultural Understanding **4 Q.H.**

This course will introduce students to the explicit and implicit assumptions which affect the way people think, view themselves, and relate to one another. Through the use of literary, political, philosophical and religious works, and personal accounts, students will be shown how individuals in various contexts come to have different perceptions of how life should be lived. Students will be asked to identify their own assumptions and contrast them against those held in parts of Asia, Africa, and Latin America. Patterns of thinking and intellectual activity, value systems, group dynamics, and the impact of ideology will be explored. "Traditional" and "Modern" patterns will be compared. Students will be introduced to the scope of cross-cultural interaction with a focus on facilitating the understanding and acceptance of differences across lives. This course will be of particular interest to students in professional schools who seek careers in multicultural settings (urban areas in the United States) or in the international setting.

The format of the course will include lectures, discussions, videotapes, and a greater than average emphasis on experiential learning including role-play

and simulation. In particular, students will enact situations taken from other cultures and difficulties in cross-cultural communication. Guest speakers from

various cultural contexts will be utilized to highlight cross-cultural perspectives.

Alternative Freshman-Year Program

The following courses will be offered in the Alternative Freshman-Year Program during the 1986/1987 academic year.

ECN 4100 Economics I 4 Q.H.

Topics include development of macroeconomic analysis; review of national income concepts; national income determination fluctuation and growth; role of the banking system and the Federal Reserve System; government expenditures and taxation; international trade; and balance of international payments.

MGT 4110 Survey of Business and Management 4 Q.H.

The course offers an introduction to the setting and general structure of American business, the characteristics of private enterprise, and the nature and challenge of capitalism and other forms of economic enterprise. The forms of business, the structure of organization, and the functions of management are discussed in the context of their influence on the various forms of business. Through lecture and class discussion the student is given an overview of the methodologies used in planning, organizing, directing, and controlling the functions of production, marketing, sales, pricing, and finance.

ED 4001 Integrated Language Skills Development I 2 Q.H.

This course strives to improve a student's reading comprehension and related study and language skills. The course devotes time, discussion, and considerable practice to meaning skills such as basic reading comprehension and interpretation, including work in critical reading and other interpretational acts (inferences, understanding imagery, and symbolic usage). Study skills, previewing, finding main ideas and details, outlining and summarizing, continuous interaction, and interaction of all the communications skills—reading, writing, listening, and speaking.

ED 4002 Integrated Language Skills Development II 2 Q.H. (Prereq. ED 4001)

A continuation of ED 4001.

ED 4003 Integrated Language Skills A 4 Q.H.

This course strives to improve a student's reading comprehension and related study and language skills. The course devotes time, discussion, and considerable practice to meaning skills such as basic reading comprehension and interpretation, including work in critical reading and other interpretational acts (inferences, understanding imagery, and symbolic usage). Study skills, previewing, finding main ideas and

details, outlining and summarizing, continuous interaction, and interaction of all the communications skills—reading, writing, listening, and speaking.

ED 4004 Integrated Language Skills B 4 Q.H. (Prereq. ED 4003)

Extension of ED 4003, with continued emphasis on study skills, including researching, organizing, and writing term papers. Critical thinking will be explored as it relates to the learning process. The course will also address the choices of academic major and career direction, emphasizing self-assessment and personal decision-making.

ENG 4013 Fundamentals of English I 4 Q.H.

An intensive introduction to the principles of effective expository writing; emphasis on description, paragraph construction, and organization; review of the conventions of English usage, punctuation, and syntax; essay assignments.

ENG 4014 Fundamentals of English II 4 Q.H.

Intensive instruction in exposition, argument, and academic essay writing; instruction in the writing of a research paper; continued emphasis on the conventions of English usage, punctuation, and syntax; essay assignments.

HST 4110 History of Civilization A 4 Q.H.

The major ideas and institutions of civilization from ancient times to 1648.

HST 4111 History of Civilization B 4 Q.H.

A continuation of HST 4110, covering the period since 1648.

MTH 1000 Mathematical Preliminaries I 4 Q.H.

A review of precollege mathematics, primarily arithmetic. Topics covered include operations with numbers, fractions, decimals, percents, and graphs (pictographs, bar graphs, circle graphs, etc.), together with applications of these skills and concepts. The sequel of this course is MTH 1010.

MTH 1010 Mathematical Preliminaries II 4 Q.H.

A survey of precollege algebra, including signed numbers, exponents, multiplication of polynomials, factoring, linear equations, graphing, and radicals. The course is intended for students whose background in precollege algebra is weak.

MTH 1113 College Mathematics for Business 4 Q.H.

Topics include sets, rectangular coordinates and graphs, functions and functional notation, linear and quadratic functions, exponential and logarithmic

functions, systems of linear equations, summations, inequalities, permutations and combinations, elementary probability concepts, arithmetic and geometric progressions, simple and compound interest, annuities.

POL 4106 Introduction to Politics **4 Q.H.**

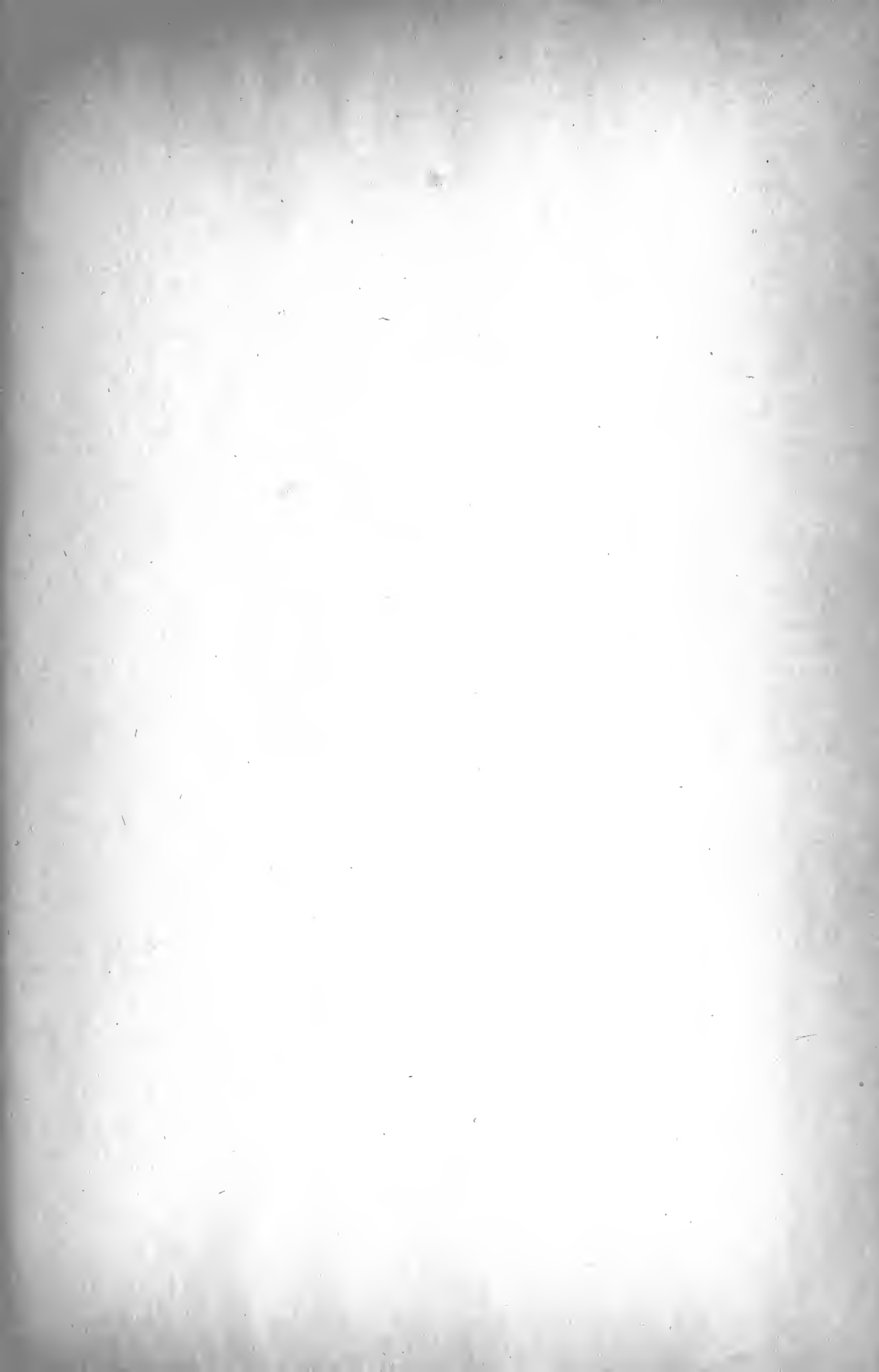
A study of the basic political concepts and forces of organization from the classical Greeks to the modern nation-state. The Soviet Union and the United Kingdom are contrasted as contemporary illustrations of the institutional distinction between a totalitarian and a constitutional system.

SOC 4010 Principles of Sociology I **4 Q.H.**

An introduction to basic concepts and theories relating to the study of humans as participants in group life. Socialization, culture, social structure, primary groups, family, social stratification, and population are emphasized.

SOC 4011 Principles of Sociology II **4 Q.H.**

A continuation of SOC 4010, Principles of Sociology I, with emphasis on critical analysis of American society with particular attention to problems of social, political, urban, and industrial change.



Academic Calendar 1986—87

September 1986

1	Monday	Labor Day. University closed.
8-12	Monday-Friday	Final examinations for Basic Colleges.
15-23	Monday-Tuesday	Division B vacation.
18	Thursday	Fall commencement.
22	Monday	Freshman and transfer students' orientation and University registration.
24	Wednesday	Upperclass registration (Division B) 9:00 a.m.
24-26	Wednesday-Friday	Continuation of course advising, course registration, course drop/add periods, orientation for college day programs.
26	Friday	Burlington Campus orientation and course registration.
29	Monday	Classes begin in Basic Colleges for fall quarter; 8:00 a.m.

October 1986

13	Monday	Columbus Day. University closed.
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November 1986

11	Tuesday	Veterans Day. University closed.
27-29	Thursday-Saturday	Thanksgiving Day recess.

December 1986

15-19	Monday-Friday	Final examinations for Basic Colleges.
22-January 3	Monday-Saturday	Christmas vacation.

January 1987

1	Thursday	New Year's Day. University closed.
5	Monday	Orientation and registration for new freshmen and transfers; registration for continuing September freshmen and returning upperclass students.
6	Tuesday	Registration, orientation and course drop/add continues until 12:00 noon.
7	Wednesday	Classes begin in Basic Colleges for winter quarter; 8:00 a.m.
20	Monday	Martin Luther King, Jr.'s birthday. University closed.

February 1987

19	Monday	President's Day. University closed.
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March 1987

23-27	Monday-Friday	Final examinations for Basic Colleges.
30-April 4	Monday-Saturday	Division A vacation.

April 1987

6	Monday	Orientation and registration for transfers and continuing freshmen and returning upperclass students.
7	Tuesday	Registration, orientation, and course drop/add continues until 12:00 noon.
8	Wednesday	Classes begin in Basic Colleges for spring quarter; 8:00 a.m.
20	Monday	Patriots' Day. University closed.

May 1987

25	Monday	Memorial Day. University closed.
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June 1987

15-19	Monday-Friday	Final examinations for Basic Colleges.
21	Sunday	Commencement.
22-27	Monday-Saturday	Division B vacation.
29-30	Monday	Registration for Division A and D and January freshmen (Quarter 3). Beginning of summer quarter.
30	Tuesday	Basic College classes begin for summer quarter; 8:00 a.m.

July 1987

4	Saturday	Independence Day. University closed.
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September 1987

7	Monday	Labor Day. University closed.
8-11	Tuesday-Friday	Final examinations for Basic Colleges.
14-22	Monday-Tuesday	Division A vacation.
17	Thursday	Fall commencement.
21	Monday	Beginning of 1987-1988 academic year. New student orientation week. Registration and advising week for all returning upperclass students and all new students.
28	Monday	Classes begin for Basic Colleges for fall quarter; 8:00 a.m.

